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An Address
ON
REST, WORK, AND PLAY IN HEALTH AND DISEASE.*

BY

SIR E. FARQUHAR BUZZARD, BT., K.C.V.O., M.D., F.R.C.P.,
REGIUS PROFESSOR OF MEDICINE, OXFORD UNIVERSITY.

WHEN our President honoured me with an invitation to address you to-day, I did my best to visualize the conditions under which I should have to carry out my task, and came to the conclusion that work and play would be appropriate subjects for discussion at this meeting, and that rest on this, the last day, would not be without its seductive appeal to some of us. Questions in regard to indulgence in work, play, and rest are so often put before us in our professional capacity, and are so often answered with more respect to tradition than to experience, that they deserve the reconsideration due to all possible factors in the production or maintenance of health and disease. While it is true that play and rest are generally, and indeed not unpopularly, recognized as prophylactic and remedial agents of no mean value, the position of work is more precarious in the minds of the profession and of the public, and it may be that it has earned a reputation for etiological mischief based on somewhat slender evidence. It is not surprising—it is only in accord with human nature—that when the cause of an illness is in doubt, over-indulgence in work is a more acceptable verdict than over-indulgence in other things, such as food, drink, or tobacco. But a verdict which is most welcome is not always the best founded, and the medical profession, bearing in mind the well-recognized good health and longevity of its members, should surely hesitate to agree that over-working can be held responsible for disease or death, without a careful examination of the testimony supporting that doctrine.

It might at first sight be presumed that our knowledge of the physiology of the nervous system provides us with principles sufficiently reliable to guide us in prescribing work, rest, or play; but, helpful as such knowledge is, it is not yet equal to solving all the problems with which we are confronted, and we must still look to clinical experience for light and learning.

On the other hand, clinical experience is of little value unless it is subjected at every step to careful analysis and the *post hoc propter hoc* process of reasoning used with critical economy. If this rule were as conscientiously observed as it should be by all who have had the advantage of a scientific training, the value of time, the lapse of time, as an important ingredient of treatment, would not be so often overlooked. And giving credit to time is, after all, only an alternative to paying the tribute due to nature's share in repairing structure and restoring function. This sounds like a platitude when addressed to those who have wrestled successfully with the courses and inquisitions of the medical curriculum; but if the critical faculty inculcated by the latter survived more generally for a few years the ordeals of practice, we should dispense with at least one-half of the therapeutic measures and concoctions which are prescribed from time to time at the dictates of a prevailing fashion or of an enterprising firm. Is it not true to say that while the time factor is usually estimated at its proper value in relation to certain morbid conditions, the length of which is more or less defined, such as a specific fever or a bony fracture, it is undeservedly neglected in relation to other common disorders whose course is less easily foretold, such as an attack of sciatica or a broken heart? I need only remind you of the craze for rest cures as the universal remedy for all psychoneuroses thirty years ago in order to illustrate the dominating influence of fashion on medical practice. The employment of rest in the treatment of an anxiety neurosis, as in the treatment of a damaged joint, has indeed undergone a revolutionary revision in recent years. My chief object to-day is to examine our established practice in regard to the prescription of work, rest, and play, and to question some of the principles which govern it. As the nervous system is more concerned with these matters than any other my illustrations will be largely drawn from its functional and organic disorders, and particularly from those which call for specific advice in the regulation of mental and physical activity.

* Delivered on the occasion of the Annual Meeting of the British Medical Association, Winnipeg, 1930.

The Prescribing of Work.

Epilepsy is one of the commonest disorders of the nervous system, and one which every practitioner is called upon to treat. I expect that we shall all agree that the following story is typical of many presented to us. A boy of 14 years of age, with a previous history of average good health, and with apparently good prospects, has a fit, followed a few months later by another. Perhaps the first has been disregarded, or attributed to some quite inadequate cause, but the second has created alarm, and awakened the parents' minds to the possibility that their son's whole future career is jeopardized. In this atmosphere of panic it is not unnatural, and certainly not unusual, to find that some drastic alteration in the patient's life is advocated. He is to be taken away from school, his brain must be freed from all the strain of lessons, and he is to be allowed to run wild for a year in the open air. The chief advantage of such advice is that it sounds eminently sensible, and yet experience teaches us that it may have disastrous results from more than one point of view. In the first place, there is no justification for believing that it will diminish the liability to recurrent attacks; in the second place, it interferes with and interrupts the normal progress of intellectual and moral development and discipline; and thirdly, it suggests to the patient's mind that he is not as other boys are, with the result that a sense of inferiority is easily acquired. Even these disadvantages might be worth incurring if we did not know that, speaking generally, an epileptic subject is less liable to fits when his attention and interest are fully occupied than when his thoughts are allowed to run loose. I have known so many children of both sexes overcome the liability to fits when their ordinary educational career is proceeded with that I am convinced that work can rarely exercise any prejudicial effect. In other words, regular and moderate hours of work and play may safely be regarded as an essential part of the treatment, and if, when combined with medicinal therapy, they are unsuccessful, the outlook is certainly grave. Perhaps a general recognition of this truth might influence more schoolmasters to co-operate in rescuing boys and girls from the menace of a very terrible affliction. Undoubtedly, not a few regard the epileptic brain as an organ which should not be allowed to exercise its normal functions, an opinion to which I can give no support. Our ignorance of the pathology of the epileptic habit is so profound that we are obliged to seek elsewhere for guidance in preventing its establishment, and I feel convinced that much depends, in a great many cases, on the way the patient is handled when the first symptoms of this nervous disorder make their appearance. While it is one of the few diseases in which the influence of drugs, properly administered, is of paramount importance, success in treatment is enormously favoured by interfering as little as possible with the normal routine of cerebral activity—in other words, with the ordinary ration of work.

Let me turn to another common disease of the nervous system, of which the pathogenesis is still not established. A young woman, between 20 and 30 years of age, engaged in teaching, develops diplopia and a disability of one limb, leading to a diagnosis of disseminated sclerosis. Vision returns to normal and the defective limb recovers its function in the course of a few months, but the diagnosis has been made, and the patient's relations know that a threat of recurrent disabilities overhangs the girl's future. The doctor is asked what steps can be taken to prevent relapses, and in many cases he will advise the relinquishment of her work and the avoidance of all mental and physical exertion. Again the advice sounds all right, but can it be justified by any reliable evidence? My clinical experience leads me to believe that we are without any satisfactory

knowledge as to what factors are responsible for the appearance of fresh plaques in this disease, that relapses may be delayed for five, ten, or fifteen years, and that they are as likely to appear at the end of a long restful holiday as in the middle of a strenuous term's work. If this is the case, are we justified in asking our patient to give up her career, her interest, and her chief source of happiness in life? I can recall so many patients who, in spite of carrying the label of disseminated sclerosis, have led active and useful lives over a number of years, that I should always hesitate to advocate one of idleness. I cannot believe that normal activity or even normal fatigue of the nervous system has any prejudicial influence in such cases, and I am sure that the patient's interests are best served by the encouragement to resume her normal occupation and habits. One particular incident which has always been fixed in my memory is worth recording in this connexion. A young woman, who had suffered from symptoms of disseminated sclerosis and had temporarily recovered, was employed in a large shop or store. The building in which she worked caught fire. She escaped with difficulty, although several of her companions lost their lives. In spite of this emotional experience, followed by months of particularly hard work, she remained quite well, and it was not until a year or two later, while spending her summer holiday at the seaside, that she developed further symptoms of her disease. Before leaving the subject of disseminated sclerosis I must make it clear that I do not advocate activity during the acute phases of the disease. On the contrary, rest must be regarded as a first essential in favouring the complete or partial restoration of function in damaged parts of the nervous system, a process which may be safely entrusted to time and nature, at any rate in cases of recent origin.

Paralysis agitans, or Parkinson's disease, affords another example of organic disorder of the nervous system in the handling of which the question of work and rest has often to be answered. Here we have to deal with a chronic progressive defect of function of a part of the central nervous system, the cause of which is unknown and the course of which we are entirely unable to influence by any method of treatment. A man of 50 engaged in business, and blessed with other interests and hobbies, develops the characteristic facies and tremor of the disease, and quite naturally asks whether he should give up his work and lead a more restful and sedentary life. In my opinion the answer should be definitely and firmly in the negative. The devotion of time and money to the many curative treatments which will be pressed upon his notice can only lead to a long series of disappointments, and the more leisure he has at his disposal the more will he become preoccupied with his affliction. If he is well advised he will carry on with his work and his play regardless of the fact that he is slower and less active, and as far as possible refuse to recognize his limitations. Only by taking, and persevering in, such a line of action will his life be made tolerable, and we have no right to suggest that by sacrificing his work or his recreations he may expect to render his disabilities less irksome. There is nothing more pathetic or tragic in medicine than the sight of a patient suffering from paralysis agitans who has given up his lifelong interests in the vain pursuit of a cure, and it is difficult to exaggerate the importance of giving the right advice in these cases. There is nothing easier for the medical attendant to advocate than avoidance of mental and physical activity, the very attributes which it is most desirable his patient should foster and preserve.

The observations I have offered on epilepsy, disseminated sclerosis, and paralysis agitans may be applied with discriminating modifications to many other organic disorders of the nervous system. They uphold the principle that work, the normal activity of the nervous system, is not contraindicated even when parts of it are damaged or out of order, so long as the latter are not subjected to an unreasonable amount of strain. They are opposed to the tradition that because a patient is suffering from a disease of the nervous system all the multitudinous functions of the brain should be put in irons and allowed to rot. After all, we encourage other organs to carry out their functions even when they are damaged by disease. Work is a physiological, not a pathological, process, and its output is not only valuable in itself, but carries with it a psychological influence of paramount importance to the patient's insight, his outlook on life, and his general welfare.

Rest in Therapeutics.

If discrimination is called for in prescribing work, it is equally necessary in prescribing rest, and a review of our practice in the latter and of the doctrines which have led up to it may not be without profit. In the first instance, I propose to deal with rest as it is employed in the treatment of psychopathological conditions, and the word "rest" will, for the moment, mean confinement in bed with partial or complete isolation. May I remind you again of the fact that for a period of years rest cures were regarded as the orthodox method of treating neurasthenic and psychoneurotic disorders, and may I suggest that the practice has become less fashionable because experience has exposed its failure to deal effectively with all cases? It may be that rest cures still have their value, and it may be that we are still not quite competent to judge when complete rest is indicated or contraindicated. The rest cure prevailed at a time when our insight into so-called "functional disorders" was not so clear as it is now, and there can be little doubt that it was employed indiscriminately for a number of conditions which differed in origin and which therefore called for different treatment. Moreover, when it successfully attained its object, and relieved the patient, there was always some doubt as to the relative share of the prescribed rest, of suggestion, and of the lapse of time in achieving the result. The bulk of "functional disorders" can be divided for practical purposes into three categories: (1) the anxiety neurosis, (2) hysteria, and (3) the milder forms of the manic-depressive psychosis. Hysteria may be dismissed from further consideration here, because its treatment is essentially based on psychotherapy and rarely demands serious rest. In fact, we may be assured that a rest cure unassociated with psychotherapy would be singularly unsuccessful in curing the frank hysteric.

In spite of our improving insight into psychopathological disorders, the differentiation of an anxiety neurosis from a mild manic-depressive psychosis is not always made with the sharpness it deserves, and in view of its importance for the purpose of treatment a short consideration of the problem will not be out of place. Certain symptoms are common to both conditions, and so lead to mistakes in diagnosis and to inappropriate treatment. Depression insomnia, failure of concentration, decision, and memory, exhaustibility and restlessness, are complained of both by the neurotic and by the psychotic patient, and particular attention must be directed to one or two of these symptoms in order to make a diagnosis. The depression of the neurotic patient is variable and sometimes dispersible; it is made worse by fatigue and may be alleviated by distraction. It is attributed to the faults of others or to unfortunate circumstances, and it is very rarely of a quality or intensity which leads to suicide. The depression of the psychotic patient, on the other hand, is that of a person who is incapable of interest in anything. It involves loss of natural affections and appetites, and cannot be dissipated by distraction. It is associated with self-accusation and remorse for some real or imaginary wrongful act or behaviour in the past, and no arguments will avail to correct the obsession. It is at its worst in the early morning, when morbid and suicidal thoughts are apt to be translated into deeds. With the neurotic patient sleep is always a difficulty, and he is inclined to lay the blame for his sufferings on insomnia. With the psychotic patient sleeplessness is not so invariable, and indeed may sometimes be self-inflicted, owing to his dread of the terrible depression which overtakes him on waking. The one fears the night, the other the day. Further consideration of the distinctive characters of these two conditions would be out of place, and I have said enough to indicate the features concerned with the question of therapeutic rest. Harking back to the success and failure of the rest cure it is easy to realize that many a patient suffering from psychotic depression was well protected and cared for during the period of his illness, and that the necessities

for his recovery—rest, encouragement, and time—were all available, if his pocket could stand the strain. We know that such patients always recover in time, that sympathetic care rather than active treatment conduces to safety, and that psycho-analytical attacks are more of a danger than a help. The patient with an anxiety neurosis is a different problem. Rest may or may not be helpful, depending on the state of exhaustion prevailing at the moment he comes under medical attention, but recovery will depend more on skilled psychotherapy than on the prescription of so many weeks' confinement to bed. In fact, we must never forget that rest tends to narrow and to limit the patient's environment, and so encourages preoccupation and introspection.

I have memories of the anxiety neurotic patient emerging from a prolonged rest cure unrelieved, and I can recall certain patients with psychotic depression being released too soon from allotted periods of rest only to end their lives. The question of rest in the treatment of functional nervous disorders is not, therefore, so simple of solution as it at first appears. Its value can only be estimated accurately in the light of a correct diagnosis. The rest cure has fallen into comparative disrepute now that we realize that rest is a useful ally, but rarely the essential agent, in the relief of the "psychopath." But a rest and a rest cure are not synonymous terms, and the former is loosely used to indicate relaxation and recreation as well as physical torpor. In this way rest from work may include recreation, which is often play, a species of activity the reverse of restfulness. In the maintenance of health there is much variation among individuals in regard to the amount of sleep or complete repose required in order to avoid undue fatigue. It would seem that every individual is endowed with his own capital of nervous energy on which to draw, and that over-expenditure is attended by symptoms with which we are all familiar. We also recognize that prolonged activity of one part of the nervous system may lead to fatigue of its particular function or reactions, without unduly depleting the capital of nervous energy or interfering with the function of other parts. It is on this principle that the healthy person, consciously or unconsciously, regulates his life; in other words, he employs various parts of his nervous system in turn without tiring out any one of them. Unwittingly he recognizes the physiological law that reactions are more easily fatigued than the common paths through which they are executed, and that one set of reactions may regain their functional integrity, after fatigue, while others occupy the field of action. The repetition of one operation may in the end produce what is called specific objective fatigue, a form of fatigue which does not interfere with the performance of another operation. On the other hand, general objective fatigue which may be induced by one kind of work may affect the output of an entirely different kind of work to a small extent. Experiment has shown, however, that fatigue produced by mental work is evanescent, the mind being restored to efficiency by sleep or by short interruptions of its activity. The phenomena attributed to overwork are more often and more justly to be ascribed to preoccupations of a personal character amounting to an anxiety neurosis. According to Gillespie: "Clinical experience bears out these experimental findings. Mental exhaustion, brain strain from overwork, and the like can be safely discarded as a hypothesis in 999 out of 1,000 cases. The apparent mental incapacity in such cases is nearly always the result, not of intellectual effort, but of anxiety or a kindred emotional disturbance. This is brought home very dramatically in the sudden recovery of persons complaining of 'brain-fag,' which has perhaps limited their work to periods of less than an hour each, when a source of worry is removed."

Except during sleep, the mind is always active, and it is customary to allot a certain number of hours in each day to a specific form of work, mental or physical, the remainder being spent in recreation. The latter may be of various kinds, according to the interests of the individual: the pursuit of art, science, or literature, or participation in sport or games. They all involve cerebral activity, and derive their beneficial effects from the fact that the centre of interest and action is temporarily changed. The player of a game, for instance, is refreshed by following his favourite ball because his centre of interest is altered, other reactions are initiated, and his mind is preoccupied with problems entirely different from those associated with his work. It is probably not an exaggeration to say that these factors are of much greater importance than the physical exercise the game involves in promoting a state of good health. Realizing, as we must do, that interest depends largely on inborn facility, and that without interest the benefit of recreative pursuits is greatly discounted, we should be well advised not to make a fetish of games as the only means of securing relaxation from work. "Take up golf" is in danger of becoming a tabloid preparation, too easily prescribed, readily swallowed, and not always producing the desired results. To many, a change from one form of mental work to another is much more recreative than the pursuit of a ball whose flight and destination are of much less interest than those of a moth or a bird. It is certainly true, moreover, that a very small amount of muscular exercise will suffice for the maintenance of good health. It is sometimes alleged, and the allegation sounds sensible, that the crowds of people who watch football or baseball on a Saturday afternoon would be better employed playing some game themselves. As their interest cannot be doubted, and as they spend their time in the open air, the conditions favouring relaxation and recreation appear to be adequately fulfilled. On the other hand, it must be admitted that their interest is often more financial than sporting, and therefore predisposes to the development of an anxiety neurosis, which may not always yield to the recuperative influence of the next week's work. Incidentally, it is our duty to expose the fallacy that the good health, especially the mental good health, of an individual is directly dependent on the size of his muscles. Physical exercises, unassociated with cerebral activity and recreation, are no panacea for mental exhaustion; on the contrary, they constitute a super-tax on the nervous system, and encourage the musculature to make further and uneconomic demands on its limited sources of energy. Muscles are intended to be the servants, not the masters, of man, and the efficiency of their service must be measured not by their bulk, but by the speed and accuracy of their response to the demands of the nervous system.

Perhaps, in order to anticipate remonstrances, I ought to explain that these remarks are not intended to be an attack on physical jerks as a whole. They are directed rather against the craze for various systems of exercises advertised to cure all disorders, whether of the liver or of the nervous system, and largely taken up by the sedentary worker, lacking a hobby, in the vain hope that they may dissipate his weariness of spirit. He may be unaware that this weariness represents a subconscious inhibition of a particular activity, in other words, a psychological state of staleness rather than one of real exhaustion.

Relaxation.

While the question of recreation is complicated by personal idiosyncrasies, and must be answered only after careful consideration of individual needs, that of relaxation deserves perhaps more general examination. Remembering the remarkable capacity shown by nervous centres to recuperate rapidly from fatigue, and taking into account the natural aptitude possessed by certain individuals for long periods of intense work, interrupted by comparatively short spells of complete repose, it may be asked whether more could not be done to acquire and cultivate such enviable powers of alternating concentration and relaxation. The cult of relaxation is no new thing, but, like most cults, may have lacked the recognition it deserves owing to the enthusiasm of its protagonists. At any rate, we are all familiar with individuals who appear to wear themselves out by maintaining a continuous state of restless but unproductive activity. It may be that a scientific study of complete mental and physical relaxation, its methods of induction, its proper relationship to work and play, and its value in everyday life, might show that it is a habit, the acquisition of which is worthy of becoming an item in everyone's education. At any rate relaxation, like work and recreation, is not

likely to escape further study, and we may perhaps look forward to the time when we shall be able to switch off our nervous energy as readily as we do our wireless or our electric light, and so regulate its consumption to our better advantage. In these days the problem of utilizing time advantageously is becoming a more and more difficult one, and those who learn early in life how not to waste the hours at their disposal have taken a most important step in achieving such success as lies within their reach.

CONCLUSIONS.

In the course of these rather desultory and disjointed remarks no attempt has been made to lay down hard-and-fast regulations governing the prescription of work, rest, or play for the preservation of health or for combating disease. No prescription of the kind can be printed and distributed indiscriminately to all who seek advice on this subject, and no rules can be formulated, applicable to any case, without careful consideration of the individual and personal factors involved.

But if regulations are impossible guiding principles are not without their value, and among these I would emphasize again:

(*a*) The recognition of work as an ally, not an enemy, in therapeutic operations on nervous disease.

(*b*) The paramount importance of a correct diagnosis in functional disorders before determining the part to be played by rest and work in their treatment.

(*c*) The value of physiological and psychological considerations in the choice of recreations.

The subjects to which I have directed your attention, if they are not altogether commonplace, at any rate pertain to everyday life. The questions I have raised are among those which every individual believes he is best fitted to decide for himself. They certainly do not admit of dogmatic answers, and I shall be well content if they stimulate serious consideration, and suggest habits and prescriptions of work, rest, and play such as will promote health and prevent disease.

THE PROBLEMS OF MELANOMA.*

BY

PROFESSOR JAMES EWING, M.D.

(From the Pathological Department of the Memorial Hospital, New York.)

THE problems of melanoma maintain their position as the most interesting and complex of any department of oncology. Numerous competent investigations of the past decade, especially those of Dawson[1] and of Masson,[2] while illuminating some questions, have left others quite untouched or even more conspicuous and uncertain. The complexity of the sensory nerve endings, the peculiar relations between these structures and the cutaneous epithelium, the wide distribution of chromatophores, and the ramification of the whole subject of pigment formation in the animal kingdom render the study of melanoma quite a different matter from that of any other malignant tumour process. It is the object of this communication to enumerate some of these problems, not with the ambition of presenting a solution, but with the hope that a simple statement of them may lead to more definite efforts toward a solution as the progress of knowledge permits. Tumour pathologists may not feel flattered that the discovery of the nervous origin of the naevus, made by Soldan[3] in 1899, remained practically unnoticed until it was rediscovered and elaborated by Masson in 1927. Possibly there are other important data lying within easy reach of the alert observer.

ORIGIN OF THE QUIESCENT NAEVUS CELL.

Since the work of Soldan, and especially after the more elaborate and complete exposition of Masson, there is no longer any room for debate about the nervous origin of the naevus cell. In the so-called "nerve naevus," occurring mainly in the subcutaneous tissue, but often quite superficial, Masson has shown that the naevus cell is a derivative of specialized cells in the sensory nerve endings. In and about the groups of small glassy quiescent naevus cells he finds many nerve fibrils, and in many cases of nerve naevus these cells are aggregated into definite end-organs of the type of Meissner's corpuscles, and in such intimate relation to the nerve fibre bundles as to leave no doubt that they belong to the peripheral nervous system. Every transition from the nerve end-organ with a ring of polyhedral cells up to the characteristic groups of pure naevus cells can be followed in these nerve naevi, while the epidermis fails to show the slightest sign of abnormality. It is remarkable that this fact could so long escape recognition, even after the simplest histological technique.

Masson does not undertake to decide whether the naevus cells are mesodermal, glial, or epidermal, but insists that they belong to the nerve end-organ. The relation to the chromatophore remains unaffected by this observation. The cells of the Meissner corpuscle are unpigmented, but a mantle of chromatophores often covers the peripheral rim of the naevus. In some cases the two orders of cells, pigmented and unpigmented, appear to be entirely separate, but in other cases the more peripheral cell groups show increasing pigmentation. These features strongly indicate that the special cells in the nerve naevus produce the pigment.

All these recent studies seem to dispose finally of the theory, first advanced by Unna, that the naevus cell is a displaced down-wandering epithelial cell, or that it is an endothelial cell, because of its endothelial morphology. There has never been any substantial basis for either of these time-honoured misconceptions. They do not, however, dispose of the possible participation of epithelium in some of the manifestations of melanoma or of the general class of pigmented tumours.

Unna originally, Nicholson, Dawson, and many others, have described in detail what they regarded as the down-wandering of pigmented naevus cells from the epithelial layer and their depigmentation when originally pigmented. I believe that these observations were made upon active melanomas, where it is undoubtedly possible to trace the down-wandering of tumour cells, but they fail entirely to prove that these down-wandering cells ever assume the glassy appearance of quiescent naevus cells. The evidence points strongly to the conclusion that in the active naevus the glassy cells proliferate in the derma while at the same time certain cells of the Malpighian layer also proliferate, the two groups uniting and forming the complex picture of the growing melanoma with supposed epithelial invasion. In most melanomas, especially those derived from deep naevi, there is no participation whatever of the epithelial layer, but in some cases both types of cells, those of the Malpighian layer and those of the corium, are active.

It thus appears that melanoma involves a growth of the specific cells of the sensory nerve endings, naevus cells in the corium, and in other cases the tactile corpuscle of Merkel-Ranvier and the chromatophores in the epidermis. One can find much evidence favouring the view that the epidermal participation in melanoma does not involve the whole epithelial layer, but only the specialized cells of Merkel and the chromatophores. These soon form small groups that stand out prominently in the Malpighian layer and then invade the derma. These cells are never exactly like those of ordinary epidermoid carcinoma. They are finely granular and opaque. They form peculiar groups of crescentic or polyhedral cells, which the experienced histologist easily recognizes as melanotic, and they retain these characters in metastases.

THE TACTILE CORPUSCLE OF MERKEL-RANVIER.

The nature and behaviour of the tactile corpuscle of Merkel-Ranvier still remain obscure, untouched by recent studies, and continue to present one of the fundamental questions. Merkel and Ranvier showed that the terminal filaments of the sensory nerves arborize about certain cells of epithelial morphology lying in the Malpighian layer of the skin. These cells do not appear to differ in any respect from the average epithelial cell of the skin, but their relation to the nerve filaments raises an assumption that they may be of nervous origin, and to that extent

* Paper read in opening a discussion in the Section of Bacteriology, Pathology, Physiology, and Biochemistry at the Annual Meeting of the British Medical Association, Winnipeg, 1930.

similar in nature to the naevus cells of the deeper nerve end-organs. It seems most improbable that the terminal nerve fibril should appropriate any ordinary epithelial cell for its physiological functions. A parallel example is the taste bud of the tongue, where the nervous origin is probable. This question seems at present to be unsolvable, but there is considerable evidence suggesting that the tactile corpuscle is not an ordinary epithelial cell, and that it behaves independently in some of the manifestations of melanoma and other diseases of the skin.

In addition to the tactile corpuscle of Merkel-Ranvier, there are in the epidermis of most subjects, or under many circumstances, wandering pigmented chromatophores which have an important relation to melanomas of the skin. Bloch has shown that in the unpigmented skin of the infant, stained by the dopa method, peculiar cells are found in which the pigment material is invisible under ordinary circumstances. Apparently the skin is prepared in the embryo to produce pigment from slumbering chromatophores when it is needed. There are thus two types of specialized cells in the epidermis—chromatophores and tactile cells—with relations to melanoma, and the question of the relation of these two types of cells remains unsolved. The conditions in the subcutaneous nerve naevus—nerve cells associated with chromatophores—seem to be duplicated in the epidermis. After careful study of several nerve naevi and many early melanomas I have been inclined to suspect that the wandering chromatophore of the epidermis bears the same relation to the tactile corpuscle as the pigmented cell of the deep nerve naevus bears to the unpigmented naevus cell. According to this view the naevus cell becomes transformed into the chromatophore. This theory is practically identical with Ribbert's,[4] except that Ribbert was not aware of the nervous relations of the deep naevus cell. In offering this suggestion regarding the nature of the tactile corpuscle, I am fully aware that the evidence in its favour is quite inadequate. It may well be that the tactile corpuscle is an ordinary epithelial cell, and that the nerve fibrils end blindly in the epidermis.

Relation of Naevus Cell with Chromatophore.

Recent studies do not offer a complete explanation of the origin and relations of the chromatophore. Comparative studies of the pigment function in the animal kingdom strongly favour the belief that the chromatophore is a specialized cell, not to be identified with any other cell type, derived originally from the mesoblast, and with important relations to the nervous system. Yet the evidence from human pathology is against this exclusive theory. Stockard's[5] study of pigment cells in batrachians indicated that these cells arise very early in the embryo and ovum from mesoblastic tissue, and that they maintain their identity throughout the life of the animal. In vertebrates pigment production is evidently more complex.

The indications from comparative pathology are so strong that I have always agreed with Ribbert that one should maintain the theory of the independent nature of the chromatophore against all but the most convincing evidence. The relations to the nervous system are very prominent. In the chameleon this cell is attached to the sympathetic nerve fibril and supplied with contractile muscle fibres, which control the colour changes in this animal. The wide-wandering function of the chromatophore in lower animals and man is noteworthy. This cell accompanies the ramifications of the sensory and sympathetic nerve fibres in many situations. It is widely distributed in the meninges of many subjects, where its freedom from epithelial relations becomes most obvious. In the adrenal the pigmented cells are of neuro-ectodermal origin, but it is not clear that these cells have any close relations with the chromatophores of the skin, choroid, or true melanoma. In the skin and choroid it obviously functions as a protection against light. All these features point to a special origin and physiology for the chromatophore.

Additional evidence regarding the nervous relations of the chromatophore is furnished by Masson's study of naevi. In the deep naevi the chromatophores appear in most lesions as satellites about the proliferating unpigmented naevus cells which are derived from the sensory nerve end-organs. From the study of several nerve naevi I find every transitional stage between unpigmented naevus cells and pigmented cells, and have been forced to the conclusion that the chromatophore in this case is derived from the naevus cell. This view accords with the conclusion of Ribbert that the chromatophore bears the same relation to the naevus cell as the glia cell does to the ependymal cells. While many deep naevi are free from pigment, in many others pigment begins to appear in the periphery of the lesion, and sometimes in the epidermis, and in such cases the whole series of naevus and pigmented cells is entirely separated from any epithelial connexions.

An origin from naevus cells does not fully identify chromatophores with naevus cells. Having once been derived from their cells of origin, they seem to acquire new properties and to function in many respects independently. Moreover, there may be many other situations in the development and physiology of the nervous system leading to the formation of chromatophores. It is not necessary to assume that all chromatophores develop in the course of nerve naevi, which is a pathological lesion of the general character of a haematoma and prone to develop tumour processes. That some melanomas are derived from adult chromatophores without any intervention in naevus cells seems probable; this will be discussed shortly.

Some forms of abnormal pigmentation of the skin, due to activity of chromatophores and the diffuse deposits of chromatophores in the meninges, seem to show that adult chromatophores enjoy an independent existence apart from any connexion with naevus cells, from which they are developed in many melanomas.

Present indications, therefore, point to the conclusion that naevus cells and chromatophores are different phases of the same cell order, and that both are derived from the nervous system and are free from any epithelial entanglements. Most of the facts about melanoma seem consistent with this theory, including the structure of the nerve naevus, the appearance of intra-epidermal melanomas, the occurrence of pigmented and unpigmented tumours often in the same subject, and the ready assumption of pigment production in non-pigmented melanomas.

Epithelial Origin of Melanoma.

The epithelial theory has enjoyed great popularity in the past, but since the demonstration of the neural origin of naevus cells, it has lost its main support. There remains, however, very substantial histological evidence that in many melanomas certain cells of the Malpighian layer participate in the process. In many cases the whole Malpighian layer becomes riddled with small, peculiar cell groups, pigmented or not; the basal cells seem to proliferate, and the rete columns dip down into the derma, become elongated, and mingled with other cells of the deeper portion of the tumour, giving the impression that the whole process is mainly epitheljal. It is this process which Dawson and many others have so fully depicted, and it has hardly escaped the eye of any experienced pathologist.

In this complex field I do not think that positive statements can safely be made because the histological interpretations are so difficult and uncertain, but there are several considerations which the adherents to the epithelial theory must consider and dispose of before the epithelial origin of any cutaneous melanoma can be adopted even as a partial explanation.

1. There are undoubtedly pigmented epithelial tumours of the skin which have nothing to do with melanoma, and it is sometimes difficult to distinguish between them. These are the pigmented epithelial papillomas, pigmented basal cell tumours, pigmented carcinomas in xeroderma pigmentosum. Chromatophores are generally present in these lesions, often in considerable numbers. In these pigmented epithelial tumours the pigment is sometimes produced by chromatophores, which accompany the growth of epithelium but do not exhibit any neoplastic quality. When the tumours are heavily pigmented there seems to be no doubt that the epithelial cells may take on

the function of pigment formation. This fact does not make them true melanomas, but it may be difficult to distinguish them from melanoma. Especially in a group of basal cell tumours of the skin, in which the cells are very small and the pigment abundant, the separation from melanoma requires very careful histological study and clinical observation of the course of the disease. Such tumours have no bearing on the questions of true melanoma. It should be noted that in these true pigmented epitheliomas the growth affects the entire layer of the epidermis, and not small isolated groups of cells, so that the whole picture is quite different from that of melanoma.

2. When epithelium appears to take part in the formation of a true melanoma the appearances are peculiar and unlike any other early epithelioma. Isolated cell groups appear throughout the Malpighian layer which are different from the ordinary epithelium. It is possible that these cells develop from chromatophores, since many of them are pigmented, as in the infantile naevus, or they may possibly arise from tactile corpuscles, which may be of neural origin. In any case, the appearance of such lesions is quite different from that of any ordinary epithelioma, and this raises a doubt as to the epithelial nature of the participating cells.

3. The invasion of the epidermis by melanoma cells from below, or from the sides, produces pictures which are difficult to distinguish from the primary proliferation of Malpighian cells. The same difficulty arises in Paget's disease of the nipple, in metastatic carcinoma of the skin, and in adenocarcinoma of the rectum. In Paget's disease of the nipple the epidermis exhibits somewhat the same appearance of isolated cell groups infiltrating the Malpighian layer as appear in melanoma, and yet we know that these cells originate at a distance in the ducts of the nipple, and are not derived from the cells among which they are found.

4. In the most characteristic cases of supposed melanocarcinoma of the skin I have been unable to convince myself that the ordinary epithelial cells actually take part in the dermal invasion, and I consider that it is sometimes impossible to decide this matter from simple histological examination. In most of these cases the epithelial cells seem mechanically displaced downward, and are eventually lost among the proliferating chromatophores or naevus cells which constitute the true tumour cell. I have not been able to find a single case where the participation of epithelial cells in a melanoma was unquestionable, but it must be admitted that in some instances it is difficult to exclude them.

5. The peculiarities of the cells of melanocarcinoma throughout their entire course—which enable the pathologist to identify them as melanotic and not as simple epithelioma—suggest that the cells of origin are peculiar, and not truly epithelial.

Since there is no doubt that true naevus cells or chromatophores participate in most of these melanomas in which epithelial growth appears to occur, we must face the peculiar situation that a homogeneous type of malignant tumour owes its origin to the malignant proliferation of two entirely different types of cells. Here the epithelial theory of the origin of naevus cells finds an opening, but we have already seen that it is no longer tenable.

All these considerations stand as warnings against the too hasty adoption of the epithelial nature of any true melanoma, although they seem insufficient to exclude this theory. Further evidence on the whole question seems necessary. One additional fact comes from Laidlaw's silver impregnation method, which indicates that melanoma cells are silver-negative, while epithelium is silver-positive. It may also be noted that Luna[6] cultivated in plasma the retinal epithelium and the choroid chromatophores, and found that the former grew in sheets like epithelium, while the latter grew out in threads or as isolated cells, like fibroblasts. This observation has been confirmed by Smith.[7]

Intra-epidermal Melanomas.

Two histological types of melanomas arise within the Malpighian layer and remain within its limits for a variable period. In one of these the cells are pigmented, and elongated or spindle in form, and resemble adult chromatophores. In the other the cells are small, unpigmented, polyhedral, and reproduce almost exactly the types of growing naevus cells in dermal melanoma.

Case I.

A woman, aged 51 years, had on the back of the hand, which had been affected by poison ivy six months before, a small dark spot, which in the course of a few months became black and enlarged to 4 mm. in diameter. It was then excised. Section showed a lesion entirely intra-epidermal. The epithelial layer was broken up by the appearance of numerous groups of elongated pigmented cells, between which unpigmented atrophic epithelial cells could be detected. The basal layer was ragged, and many of the basal cells seemed to be pigmented or else replaced by pigmented cells. The pigmented growing cells lacked the form and opacity of the normal epithelium. At the bases of some rete columns the normal epithelium was completely lost and was replaced by masses of quite long pigmented cells resembling adult chromatophores. In the derma there were no changes.

The lesion was composed exclusively of cells of the type of adult chromatophores. It was unlike any known form of epithelioma. It seemed impossible to decide by histological study whether the pigmented cells arose from epithelium or from chromatophores previously existing in the epidermis. It closely resembled the process in Paget's disease of the nipple, except that the cells were pigmented and elongated. On account of the general facts known regarding the presence of wandering chromatophores in the skin, I am inclined to think that the process involved only chromatophores, and that the epithelium was passive.

Case II.

This case dates from 1905, and no history is available. The lesion consisted of a flat elevated circumscribed non-pigmented tumour, 6 mm. in diameter and 2 mm. deep, lying entirely within the epidermis. It was composed exclusively of rather small non-pigmented polyhedral cells of the type of naevus cell, except that the cytoplasm was granular. They were rather loosely aggregated. In the centre of the lesion they had completely replaced the epithelium, with the exception of a thin crust of horny cells on the surface. At the sides there was a sharp line of demarcation separating the tumour from the normal epithelium. No transitions between tumour cells and epithelium could be traced at these points. On the under surface the rete columns were enlarged and appeared distended by tumour cells, but not ruptured. There was no invasion of the derma by any loose cells. The derma itself was unchanged.

Certain deductions seem warranted by the structure of these intradermal melanomas.

1. The epidermis contains elements which are capable of producing both adult chromatophores and non-pigmented cells, closely resembling the growing cells of the deep naevus.

2. The derivation of neither of these cells from epithelium is demonstrable in the lesions by transition stages, and the process is very different from that of any epithelioma of the skin.

3. The appearances are consistent with the derivation of the tumour cells from specialized elements in the epidermis, which we know are connected with the sensory nerve-end apparatus, chromatophores, and tactile corpuscles.

4. The possible derivation from epithelium cannot be excluded on histological evidence, and must be decided for or against on the general knowledge of the factors entering into the problem.

On account of the general evidence supporting the view that naevus cells and chromatophores belong to the nerve endings, I am inclined to believe that the intradermal melanoma tells against the epithelial origin of melanoma, but I do not find the evidence conclusive.

Derivation from Chromatophores.

Having assumed that the chromatophore enjoys an independent existence apart from any neural cell from which it may be originally derived, it is interesting to inquire whether there are any pure tumours of once adult chromatophores, apart from naevus cells.

Ribbert assumed that all melanomas were derived from chromatophores, and the unpigmented naevus cells as well. It now appears more probable that the naevus cell produces the chromatophore, while the reverse process is uncertain. It seems to me very probable that certain melanomas are

derived exclusively from adult chromatophores, but it is extremely difficult to separate these pure chromatophoromas from pigmented tumours of deep naevi and from superficial melanomas, in which certain cells of the Malpighian layer probably take part.

The heavily pigmented tumours of the choroid are probably derived from adult chromatophores, but some of them in choroid, iris, and ciliary body have been traced to unpigmented cell groups which resemble the simple naevus. In the skin, both in the Malpighian layer and in the derma, one encounters heavily pigmented tumours which seem to be composed exclusively of polyhedral and spindle-shaped chromatophores without the appearance of any naevus cells.

In the meninges there are rare cases of heavily pigmented tumours for which there is little reason to assume any other origin than the adult wandering chromatophore. Here an epithelial origin is satisfactorily excluded. Yet some of these meningeal tumours gave secondary tumours which were unpigmented, indicating that the chromatophore may produce an unpigmented cell in its tumour processes.

Heavy pigmentation, the tendency to produce long spindle cells, abundant vascular supply, and metastases exclusively through the blood vessels, seem to be characteristic of pure chromatophoromas. Yet this whole subject is very complex, and positive statements seem at present unwarranted.

Relation of Melanoma to Neurofibromatosis.

The observations of Masson, establishing the neural origin of naevus cells, confirm the numerous clinical and anatomical data that relate melanoma to neurofibromatosis. One may now proceed with more confidence in accepting these indications that melanomatosis is a phase of neurofibromatosis.

In many cases of neurofibromatosis there is diffuse pigmentation of the skin due to accumulation of chromatophores in the epidermis and derma, and often marked by increase of pigment in the basal cells.

In the average case of melanoma the signs of neurofibromatosis are not pronounced, but when the naevi or melanomas become multiple or extensive, then the deep naevi and cutaneous and subcutaneous neurofibromas are generally present. Especially in the bathing trunk type of naevus, the nerve trunks of the skin are apt to be the seat of multiple neuromas and fibromas, and visceral neurofibromas are not uncommon.

A charting of the location of several hundred melanomas by Pack shows a very general distribution, but occasional cases in which the multiple tumours occur along the course of cutaneous nerves. Pack's study also shows that melanomatosis is in general a rather late manifestation of neurofibromatosis. The hereditary character of the two maladies is apparent when careful family histories are obtained, but appears rather more marked in other types of neurofibromatosis. Some remarkable cases of melanoma with neurofibromatosis have recently come under observation at the Memorial Hospital.

In a young adult male the entire trunk was covered by a thick, warty, hairy, bathing trunk naevus, and both arms and legs exhibited many large and small lesions. In most of these areas there were small cutaneous fibromas and a few subcutaneous tumours of nerve trunks. Malignant melanomas developed in several areas, and proved fatal with the usual course. Excised areas of the skin showed areas of diffuse neurofibroma and neuromas resembling nerve naevi, and on the outskirts of these tumours groups of naevus cells and clusters of pigmented chromatophores were found. The epidermis was generally intact.

It seems very probable that careful search for indications of naevus formation and melanoma in neurofibromatosis, and for signs of neurofibromatosis in cases of ordinary melanoma, will be rewarded with significant results tending to establish a close relation between these two diseases.

The observations already available seem to furnish rather substantial evidence in favour of the neural origin of melanoma, and are difficult to reconcile with the epithelial theory.

Nevertheless, I would here record a remarkable case of pigmented epithelial papilloma, with extensive black papillary tumours covering much of the trunk on one side of the body only, showing a characteristic segmental distribution on the trunk and a linear extension along the entire ulnar nerve. On section, this tumour, contrary to clinical expectations, proved to be a simple, very cellular, benign epithelial papilloma, without any features of melanoma except abundance of wandering chromatophores. Yet the distribution of the lesions and their gross appearance was exactly like that of the bathing trunk type of pigmented naevus.

Relation of Trauma to Melanoma.

The demonstration that the skin and subcutaneous tissue contain a complex nerve-end apparatus capable of giving rise to naevi and melanomas furnishes an explanation of the occurrence of some of these tumours following trauma, even when no pigmented mole existed in the affected area. It may also account for the occurrence of melanomas in peculiar situations, such as the bed of the nails, about the anus, and in the mucous membranes. In all these situations the tactile sense is highly developed, and specialized nerve endings may be assumed to exist.

While the nerve naevus is a pathological condition, Meissner's corpuscles, from which they originate, are normal structures which probably have a wide distribution.

With this knowledge the occurrence of a pigmented tumour following trauma in apparently normal skin becomes explicable, since the trauma may affect one of these nerve endings or nerve naevi. Such traumatic melanomas are especially frequent on the soles of the feet, but they have been observed in many other parts of the body, and they occur at all ages. In a recently observed case a projecting nail in the sole of a shoe penetrated the skin of the foot, resulting shortly in a pigmented melanoma. In another case in a young boy a contusion of the skin of the hand was attributed to bruising from catching a baseball, but it soon revealed itself as a non-pigmented melanoma. The frequency of subungual melanomas suggests a search in this location for some peculiar nerve ending which may explain the tumour growth.

In medico-legal circles, and especially in the compensation courts, there are indefinite reports of cases of generalized melanosarcoma supposed to have resulted from injury of skin, or musculature, or bones, or internal organs. I have encountered several of these cases without being able to find satisfactory evidence that the melanoma resulted from the injury, but also without being able to explain fully the conditions found.

Case I.

An adult, apparently healthy, labouring man received a wound of the hand which resulted in a severe palmar cellulitis. The hand was incised on three occasions and pus evacuated. After six weeks' stay in the hospital he was discharged with the hand healed and in fair condition. At no time was there any local sign of melanoma or any tumour process; yet the patient did not recover his health, but went downhill steadily with abdominal symptoms and anaemia, and died within six months after the injury. Autopsy disclosed general melanosarcoma of the liver and abdominal lymph nodes, but no primary focus of melanoma was discovered.

In this case it is obvious that no conclusions can be drawn because of the lack of detailed evidence regarding the tissues of the hand and the possible existence of primary melanoma in some occult location.

Case II.

A young man, aged 35 years, a farmer, was carrying a plank under his arm when he fell, bruising the skin of the chest and axilla against the plank. His previous health was alleged to be good. The physician who first saw him after the accident and the operating surgeon failed to find any mole or tumour of the injured skin. Within two weeks the lymph nodes of the axilla began to swell, and soon reached the dimensions of an orange. The excised nodes showed a very cellular, large-cell malignant tumour, with characteristic features of non-pigmented melanoma. The skin was involved in the process, but never developed any tumour resembling a cutaneous melanoma. The patient succumbed to pleural and pulmonary extensions.

Here the evidence regarding the previous health of the patient, the condition of the skin of the injured area, and the exact histological type of the tumour is all defective.

While the evidence in these and many similar cases is incomplete—and it seems probable that the melanoma is a coincidence—yet it raises a suspicion that the development of melanoma may not always be limited to superficial cutaneous or subcutaneous structures. Very complete studies of such cases are required before they can be accepted as instances of melanoma of traumatic origin. They suggest a search for structures of the type of naevi capable of giving rise to melanoma, from the deep nerve fibres in subcutaneous tissues, lymph nodes, mucous membranes, and viscera.

SUMMARY.

1. The work of Soldan and of Masson has proved beyond a reasonable doubt that the naevus cell is derived from and belongs to the peripheral sensory nerve end-organs. Whether this cell is neuro-ectodermal or mesoblastic is uncertain, but an epidermal origin seems to be excluded.

2. The naevus cell in the nerve naevus produces chromatophores, and the two types of cells are more or less interchangeable. Yet the adult chromatophore seems to enjoy a more or less independent existence and function apart from naevus cells. Whether there are other sources of chromatophores is uncertain, but improbable.

3. In the epidermis there are slumbering unpigmented and wandering pigmented chromatophores and probably also other specialized cells similar to naevus cells belonging to the intradermal nerve-end apparatus. These latter cells may be the tactile corpuscles of Merkel-Ranvier. The conditions in the epidermis may therefore duplicate those found in the derma.

4. In the development of melanoma exactly the same processes seem to occur, and the same relations between naevus cells and chromatophores seem to be exhibited in the epidermis as in the nerve naevus of the derma and subcutaneous tissue.

5. The theory of the epithelial origin of the naevus cell and chromatophore has always been seriously questioned by most pathologists, and in the light of the new evidence has become less acceptable. All the appearances in the epidermis suggesting the active participation of epithelium in melanoma may be referred to the growth of specialized cells belonging to the nerve-end apparatus. Yet the histological evidence in this field is complex and inconclusive.

6. Melanoma has important relations to neurofibromatosis. This fact supports the view that the cells in melanoma are of neural origin, and it is difficult to reconcile with the epithelial theory.

REFERENCES.

1 Dawson: *Edinburgh Med. Journ.*, 1925, xxxii, 501.
2 Masson: *Ann. d'anat. path.*, 1926, iii, 417.
3 Soldan: *Arch. f. klin. Chir.*, 1899, lix, 261.
4 Ribbert: *Geschwulstelehre*, 1897, xxi, 471.
5 Stockard: *Amer. Journ. Anat.*, 1915, xviii, 227.
6 Luna: *Arch. ital. di anat. e di embriol.*, 1920, xviii, 145.
7 Smith, D. T.: *Bull. Johns Hopkins Hosp.*, 1925, xxxvi, 185.

THE CLINICAL ASPECT OF DISTURBANCES OF THE PARATHYROID GLAND.*

BY

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IT may be stated briefly that the function of the parathyroid glands is the maintenance of the calcium content of the blood plasma at a definite level and the control of the calcium balance of the body. It would also appear that these glands have an important function in regulating the calcium metabolism of the fixed tissues, particularly the osseous system.

For some twenty-five years the absence or deficiency of the parathyroid function has been identified with a lowering of the blood plasma calcium and the associated occurrence of increased electrical excitability of the neuromuscular system, producing the well-known clinical picture of spasmodic tetany. But it has been only in comparatively recent years that clinical biochemical and pathological studies have enlarged our horizon and associated other abnormal conditions with disturbances of the parathyroid function. I think it may be taken that theoretically this function might be disturbed in one of three ways, as follows. There might be either: (1) a decrease in the normal function, (2) an increase in the normal function, or (3) a perversion of this function. As far as is known at the present time no such condition as would occur under the third category has been recognized as such. There are therefore left for consideration such conditions as might be identified under the first two sections. It might serve a useful purpose to consider at this time what conditions might be caused by a derangement of parathyroid function, and then determine if such an association is tenable on known facts.

On what basis or criterion may it be tentatively assumed that a disturbance of parathyroid function might exist? The function of the parathyroid has already been defined. There could therefore be no better tentative criterion than such as would indicate a disturbance of this normal function of calcium regulation. In the table are given the various disease conditions which are associated with a disturbance of the calcium metabolism. There has been included a record of the phosphorus content of the blood, as the calcium and phosphorus metabolism is so intimately associated that frequently it is impossible to interpret the significance of the first without a knowledge of the second. Of these six conditions there is definite knowledge that 1 and 6 ("parathyroid tetany" and osteitis fibrosa) are intimately connected with abnormal function of the parathyroid glands.

No.	Disease.	Blood Calcium.	Blood Phosphorus.	Calcium Balance.	Bony Changes.
1	"Parathyroid tetany"	Low	Normal or increased.	Positive	None.
2	Nephrosis	Low	Normal	Positive	None.
3	Steatorrhoea with megalocolon (sprue, coelic disease)	Low	Normal	?	None.
4	Rickets—infantile	Low usually.	Low sometimes.	Relatively negative.	Present.
5	Osteomalacia	Decreased, normal, or increased.	Variable	Negative	Present.
6	Generalized osteitis fibrosa	High	Low	Negative	Present.

"Parathyroid tetany" is a condition which occurs subsequent to removal of the parathyroid glands or to their injury or degeneration from some other abnormal cause. It is characterized by increased mechanical or electrical excitability of the neuro-muscular system with muscular hypertonicity leading to painful spasmodic contractions of the muscles of the limbs, trunk, and certain internal muscles such as those of the larynx, diaphragm, bladder, and bowel. There is also a pronounced decrease of the calcium content of the blood, which is usually in proportion to the degree of muscular irritability. There is little or no change in the *p*H of the plasma. This syndrome may be either permanent or temporary. In the former case it may lead to a painful death unless corrected by the constant use of parathyroid extract. On the other hand, it may be but temporary, disappearing completely, or being latent with but mild and temporary manifestations. Tetany is a syndrome, however, which may occur with any condition where there is a low blood calcium, or even a normal blood calcium with a prolonged negative balance, provided the *p*H of the blood and its phosphorus content be not conspicuously lowered. Such conditions are to be found in steatorrhoea with megalocolon, infantile rickets, and osteomalacia, in all of which there is a low calcium content of the blood and either absolute or a relative negative calcium balance. But the mere occurrence of tetany does not necessarily imply that the pathological condition is primarily due to a deficiency of parathyroid function. In fact there is no evidence, either experimental or clinical, to warrant such an assumption, except such as may be concluded from the fact that both in rickets and in steatorrhoea with megalocolon, or what is sometimes

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called "non-tropical sprue," the administration of parathyroid extract, with or without an abnormal increase of calcium in the diet, relieves the symptoms of tetany by raising the level of the blood calcium. There are, however, other means whereby this may be accomplished in rickets, although in non-tropical sprue the most efficient method of treatment is undoubtedly the use of parathyroid extract, not only in controlling the paroxysms of tetany, but also in ameliorating the intensity of the gastro-intestinal signs and symptoms. In fact, cases have been reported in which it would appear that a permanent cure had been effected by this means. In osteomalacia the effect of parathyroid therapy has not as yet been determined, but its close relationship to infantile rickets would appear to indicate that this form of therapy might be fruitful of beneficial results.

In the last five years a considerable interest has been aroused in the relationship of parathyroid tumours to diseases of the bone. In 1891 Recklinghausen described a generalized osteitis fibrosa, a disease which now bears his name. This pathological condition was more intensely studied by Askanazy in 1904. The first to draw attention to the association of parathyroid tumours and bone disease was Erdheim in 1907, in which connexion he described a parathyroid tumour associated with osteomalacia. Hoffheinz in 1925, in a series of 45 cases with parathyroid tumours either hyperplasia or adenoma, found 27 with diseases of the bone, 17 of which were classified as generalized osteitis fibrosa, 8 so-called osteomalacia, and 2 rickets. In the same year Mandl reported a similar case, and in 1927 Gold reported another. Mandl found a great increase in the calcium excretion, while Gold described an increase in the blood calcium. This subject has recently been reviewed by Hunter in his second Goulstonian Lecture. He here records that 14 carefully studied cases have been published up to date giving the clinical characteristics of hyperparathyroidism. These characteristics are briefly as follows. Whether the disease be due to a tumour, a hyperplasia of the parathyroids, or whether these glands be found normal histologically, the condition occurs twice as commonly in women as in men, and generally between the ages of 30 and 55. The patients complain of pains in the bones, and spontaneous fractures are common. Hypotonicity of the muscles is sometimes present, and radiograms show a greatly diminished density of the bone shadows, at times with evidence of cystic formation. There is an increased serum calcium, varying from 13 to 23 mg. per 100 c.cm., a reduction in the plasma phosphorus to between 1 and 2.7 mg., and in all cases there is an increase of the calcium output which may vary from a moderate degree to eight times the normal figure. It would appear, therefore, as if this condition were the opposite to that found in parathyroid tetany, except that there is the additional anatomical finding of pronounced bone destruction.

The superficial similarity of generalized osteitis fibrosa and osteomalacia has led to considerable confusion in the study of this subject. Hunter brings forward arguments which would seem conclusive to warrant the opinion that these are entirely different diseases. Furthermore, the general course and accessory clinical manifestations such as tetany, which occurs in osteomalacia, would make it much more likely that it is a disease more closely allied to infantile rickets than it is to the hyperparathyroid condition so intimately connected with generalized osteitis fibrosa.

Nephrosis is an interesting condition which would appear, in part at least, to be a disturbance of the permeability of the capillaries. This is manifested by an intense degree of albuminuria and generalized oedema. There are, in addition, two interesting disturbances of metabolism, one or other of which is usually present—namely, decreased basal oxygen consumption and/or a lowered blood calcium. The chief interest in this disease, which shows such pronounced renal factors, rests in the fact that a marked lowering of the blood calcium is present in a considerable number of cases, and that some of them respond most favourably to the use of parathyroid extract, not only in so far as the restitution of the blood calcium is concerned, but also in promoting a rapid disappearance of the generalized anasarca. As has been said concerning numbers 3, 4, and 5 in the table, so it may be said in regard to this disease, that although there be a disturbance of the calcium metabolism which may be rectified by parathyroid extract, there is no concrete evidence that the disease is primarily due to a deficiency of the parathyroid function. It is interesting to note in this instance that, although the serum calcium is reduced, there is never in these cases any suggestion of neuro-muscular hyperexcitability or tetany. The explanation is probably to be found in the tendency in these cases of the reaction of the blood to be towards a decreased *p*H.

In conclusion, we may state that, clinically, two conditions are identifiable with disturbed parathyroid function, the first being parathyroid tetany due to a hypoparathyroidism characterized by a low serum calcium, a positive calcium balance, and great hypertonicity and excitability of the neuro-muscular system. On the contrary, there is generalized osteitis fibrosa, a condition of hyperparathyroidism in which there is a high serum calcium, a negative calcium balance, and a tendency to hypertonicity and hypo-excitability of the neuro-muscular system, a pronounced rarefaction of the bones, and a resorption of the corticalis and original spongiosa, this being in striking distinction to the cessation of calcification characteristic of osteomalacia and rickets.

ALBUMINURIA OF PREGNANCY AND ITS LATE RESULTS.*

BY

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THE presence of albumin in the urine during pregnancy and labour may be fairly regarded as the commonest abnormality during these states. On reviewing some 6,000 cases in which there has been a complete routine examination, it is found that about 30 per cent. of all patients exhibit this abnormal urinary constituent. About seven-eighths of these only show albumin in the urine during the labour itself, and its presence may be regarded simply as the expression of severe muscular effort; therefore for clinical purposes this type of case may be disregarded. The remaining examples of the phenomenon mainly occur during pregnancy, and it has been my endeavour to ascertain as to what extent this abnormal condition influences the subsequent history of an individual.

It is necessary to say at the outset that when we try to formulate an answer to this question we soon become impressed by the futility of the effort. In the first place, we are struck by the absence of statistics bearing upon this point. It is only during the past few years that, at any rate in England, any attempt has been made to learn the subsequent history of patients who have suffered from this complication. As an example of the paucity of records, it is only necessary for me to say that, in answer to my requests for help, I have received from one hospital a statement that their records are in a condition of complete chaos, and from another that there are no records whatever bearing on this point. I think this sufficient to suggest that there is great need for more careful compilation of statistics in maternity institutions. The move for a unification of method in preparing clinical reports of maternity institutions should be productive of much good in this direction, especially if attention be focused on this class of case. It would, of course, be necessary to collate all details of the subsequent histories of albuminuries, both as regards the course of future pregnancy and the general health. Moreover, such investigations to be of material assistance should be extended over a period of at least five years from the date of the initial illness. We must also remember that the statistics

* Read in opening a discussion in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association, Winnipeg, 1930.

of maternity institutions do not represent the true state of affairs, as they only take account of those cases which return to the same hospital for subsequent pregnancies. There may be a considerable number of patients who show, for example, a recurrent albuminuria, and who are looked after by some other institution during their later illnesses. There is no way of checking this save by meticulous care in collecting facts from the patients and by the collaboration of hospitals in verifying these facts. Lastly, any attempt to answer or consider this subject accurately ought to be carried out in consort with the medical departments of general hospitals. We, as obstetricians, too often lose sight of our patients, and it is the general physician who will undoubtedly be able to give us valuable help in trying to discover what may happen to an albuminuric in after-life. An analysis of the medical records of general hospitals would also help these investigations by providing evidence as to the role of albuminuria of pregnancy in the etiology of established nephritis as seen in the medical practice of those hospitals.

Any consideration of the late results of albuminuria of pregnancy must necessarily take into consideration the general condition of which that albuminuria is a symptom, and here we find another considerable difficulty—namely, that of classifying the various states in which this symptom occurs. Hospital records differ largely in their attention to this point, and, indeed, I wonder whether any satisfactory classification can be made in the present state of our knowledge. In most records, the condition is regarded either as a transitory one, or as one of the signs of pre-eclampsia or eclampsia, or as an earnest of a chronic nephritic change. There is, of course, no doubt that the matter is not as simple as this. It is, I think, universally recognized that these clinical types do not always exist pure, and there is quite often a mixture of one or two in the same case. One might suggest with Dr. Stander, to whom is the credit of very helpful and careful work regarding all these conditions, that we might make the classification as follows:

1. Albumin present in cases of vomiting in pregnancy.
2. A clinical class of cases with "a low kidney reserve."
3. Frank nephritis complicating pregnancy.
4. That clinical condition which we know as "pre-eclampsia."
5. Eclampsia.

For the purposes of this discussion I propose to omit the vomiting of pregnancy entirely, and to confine my efforts to formulating some idea as to the subsequent history of the four remaining groups. In deciding to which group a given case belongs I have had to rely upon the information obtained by reading the clinical history, and it is but seldom that I have found the condition proved by any biochemical or any other more elaborate means of investigation. I have known of cases in which the clinical condition is very widely different from that which has been foreshadowed by the laboratory investigations, and I am not very sure that this method is of any considerable help. The idea was widely held up to the last few years that an attack during pregnancy of a purely toxic nature (I use the word in full consciousness that we are as yet ignorant whether it be a toxaemia or not) tended to make the patient less subject to the condition in succeeding pregnancies. When we read the textbooks of obstetrics we find that it is usually stated that an attack of severe albuminuria confers immunity upon the sufferer, and that subsequent pregnancies will take place without any untoward symptoms.

The painstaking work of Stander, James Young, Gibberd, and others has given us furiously to think. Young, for example, states that out of forty-seven cases of eclampsia there were six—that is, 12.8 per cent.—in which signs occurred in a previous pregnancy, and in nine cases there was a toxic condition in a subsequent pregnancy which did not reach the convulsive stage. This gives a recurrence of 31.9 per cent. These findings have been corroborated in the work which he has carried out since the paper in which these figures are quoted. Gibberd finds a recurrence rate of nearly 40 per cent., and much the same conclusions have been reached by Harris of the Johns Hopkins Hospital. I have tried to investigate as many cases as possible in order to be able to formulate some ideas in this respect, but as I said at the outset, the matter is one of very considerable difficulty.

We have to answer, if possible, the following questions:

1. When a patient develops a mild albuminuria in pregnancy, with perhaps a slight oedema, with no marked rise of blood pressure, and a generally unimpaired state of health, is she likely to show in future years or in future pregnancies, any evidence that her kidney has been permanently damaged?

2. Is a patient who suffers from chronic nephritis likely to display a progressive deterioration of kidney function in future pregnancies?

3. Is a patient who has been the subject of a true eclampsia or a pre-eclampsia likely to suffer in a similar manner should she become pregnant again?

4. Does the toxic albuminuria of pregnancy play an important part in the etiology of chronic nephritis?

My own experience is confined to some 60,000 cases of labour. It is large enough to know that anything may happen to these patients, but it is far too small to be able to forecast what is most likely to happen. I have therefore endeavoured to obtain help from various other sources, and this I have received from Professor Louise McIlroy, who has given me the results of the recent experiences of the Royal Free Hospital Obstetrical Unit, and I have also to acknowledge the great assistance I have received from my registrar at Charing Cross Hospital, Dr. Dodds, who has very kindly examined the clinical records of the City of London Maternity Hospital in order to try to find some data bearing on the subject of this discussion. I must here express my gratitude to both these doctors, and also to the staff of the City of London Maternity Hospital in allowing my registrar to use their records.

In all, nearly 30,000 cases of labour have been examined, and of that number 1,700 exhibited a condition of albuminuria which necessitated treatment during pregnancy.

There are among this number eighty-six cases in which the albuminuria has recurred more or less severely in subsequent pregnancies. This is a much lower percentage of recurrence than that found by previous observers, but I imagine that, were the histories more complete, we should find a greater number of recurrent cases.

In going over the histories of these eighty odd patients one cannot help being struck by their extraordinary diversity. For example, out of my own practice I have notes of two patients, one of whom had a very severe eclampsia with her first baby, and showed the presence of albumin for eighteen months afterwards. She then became pregnant again, and at the third month this albumin completely disappeared, and has not been found again throughout her two subsequent pregnancies and labours. Another, who had a very severe eclampsia, for which I did a Caesarean section (this was some years ago) has never from the time that the baby was 1 week old had a trace of albumin in the urine, although she has had three other children. On the other hand, I have notes of a patient who had an eclampsia in her first pregnancy, became pregnant again after two years, and albumin appeared in the urine at the second month, accompanied by a rather high systolic blood pressure (190). She was treated for some time according to the ideas prevailing at the moment, but she died in what I have no doubt was an attack of uraemic coma in the fifth month of this second pregnancy. There are also notes of patients who had had a pre-eclampsia for the first and third pregnancies, while the second was entirely normal, and there are records of albuminuria in succeeding pregnancies as far as the seventh, and then the eighth and ninth are recorded as being normal. Such instances, taken haphazard from these collected cases, are sufficient to demonstrate to you that I am unable to give any precise answer to the questions I have set. All I can give you are certain general conclusions based on the analysis of these eighty-six cases.

The first question is, from my experience, to be answered in the negative. Those cases which may be accounted

examples of a low kidney reserve do not, I think, tend to show further manifestation of a like nature in subsequent pregnancies. The consideration of the cases under review bears out this conclusion.

The answer to the second question is in the affirmative. If the condition of chronic nephritis can definitely be established, it is, I think, certain that the kidney will show a progressive deterioration in subsequent possible pregnancy. As Gibberd says, "Pregnancy is the most delicate test of renal efficiency," and I think it is abundantly true that the kidney in this class of case is increasingly unable to stand this test.

It is the answer to the third question which is of most practical importance to us as obstetricians, and unfortunately here I must confess that I cannot give any dogmatic pronouncement. It is, however, abundantly clear that in about 30 per cent. of cases there is a tendency towards either recurrence of the actual condition in subsequent pregnancies or towards some other complication of that pregnancy, such as ante-partum haemorrhage, abortion, or intrauterine death of the foetus in the later weeks.

Certain clinical facts are to be noticed in studying my cases, which I think may be of help in anticipating the course which a subsequent pregnancy may take.

In the first place, there is the duration of the illness. These cases suggest to me that an attack of pre-eclampsia or eclampsia of short duration is less likely to be repeated than one which has been spread over many weeks. From this conclusion may be drawn the inference that these albuminuric cases should not, in the absence of signs denoting definite improvement, be subject to overlong treatment, but that termination of labour should be practised, say, after ten days.

Secondly, there appears to be no doubt that the blood pressure bears as important a relation to future events as it does to a present condition. In these cases which I have studied I find no case of recurrent albuminuria in which the systolic blood pressure during the initial attack was under 150 mm. The changes in blood pressure after delivery are also important, as I shall show in a moment, for the next clinical facet of the case of albuminuria which is important in view of its prognostic value is the reaction to treatment. One has found that most cases in which medical treatment is quickly followed by a general improvement and by a fall in blood pressure do not tend to recur should the patient become pregnant again. In considering the history of the convalescence, the following two points are abundantly clear. First, when the blood pressure remains constantly raised during this period we are dealing with a patient in whom we may reasonably expect symptoms during a subsequent pregnancy. It is also, I think, true that a persistence of albumin over more than two to three months is a sign that pregnancy may be complicated by a similar state of affairs should it occur again.

Perhaps I might digress a little from the actual consideration of the fate of albuminuries in regard to future pregnancies, and for one moment suggest to you that the experience of these cases which have been followed through succeeding pregnancies enables one to make suggestions which I think you will find justified. They are reflections on the prevention and management of these pre-eclamptic states. First, I would stress the importance of early recognition. Any patient should be encouraged to report any untoward symptom, and the attendant should be constantly on the watch for the early manifestations of this condition. Secondly, I would suggest the value of energetic and thorough treatment of the condition once it occurs. We are too apt to regard the early signs of an albuminuria as not sufficiently important, and I would recommend that all such patients should at once be placed under a strict regime of treatment. Thirdly, they should not be treated too long, as mentioned above. I have an idea that this prolonged treatment defeats its object and leaves the patient more subject to recurrent attacks. This leads me to the conclusion that when a time limit has been set, say of seven days, should recovery be not noted, radical treatment should be chosen. Though I cannot subscribe to the belief that eclampsia should be treated by Caesarean section, nevertheless I do believe there is scope for this operation in the severe toxaemias of recent origin.

Turning from the consideration of the histories of these patients in recurring pregnancies, may I just draw your attention to the comparative commonness of mental symptoms after severe albuminuria occurring in pregnancy? My experience is that from 15 to 20 per cent. of known eclamptics do exhibit a confusional mental state, which state may even extend to mania. As a rule, their recovery is complete and generally fairly rapid, and I think any permanent mental instability is an expression of some pre-existing state, and not a result of the toxaemia of pregnancy, though it is probable that the toxaemia has contributed to making the condition a permanent one.

To the fourth question I can give no answer. I do not know the etiological value of an albuminuria of pregnancy in the causation of chronic nephritis, and for the elucidation of this point I think we must invoke the assistance of physicians.

THE INTESTINAL ORIGIN OF ECLAMPSIA.

BY

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THE purpose of this article is to offer an argument in favour of the intestinal origin of eclampsia of pregnancy.

Eclampsia has been well named "the disease of theories," and like many other diseases around which an enormous literature has accumulated, and for which many theories have been advanced, there is very little known about it. All the pathological changes met with in this disease can be best explained on the assumption that a condition of toxaemia exists. The composition and origin of the toxin are entirely unknown, but it seems logical—as eclampsia occurs only in pregnant women—to assume that it has its origin in the pregnant uterus, arising either from the foetus or the placenta, most probably the placenta.

For the present argument it is not necessary to deal minutely with the pathological changes; it is sufficient to state that similar changes occur in different organs—the kidneys, the liver, the brain, etc. The changes found in the liver appear to be of chief importance in eclampsia. Areas of haemorrhage and necrosis scattered throughout the liver are apparent to the naked eye, while the microscope reveals: (1) Degeneration of hepatic cells, beginning at the periphery of the lobule and gradually spreading towards the centre of it, so that in some cases the whole lobule is involved. (2) Interstitial haemorrhages and areas of necrosis. In nearly all cases of eclampsia the kidneys are similarly affected; small interstitial haemorrhages and areas of degeneration and necrosis are found in the cortex. There is also a degeneration of the cells lining the convoluted tubules.

It would appear that the toxin in the circulation affects various organs by producing areas of necrosis and small interstitial haemorrhages, with consequent alteration in their normal functions. Thus we find the kidney excreting albumin and no longer acting as an efficient barrier to the colloids of the blood. Analogously, the liver may also cease to act as a barrier between the portal and the systemic circulation, so that substances in the portal blood are allowed to pass unchanged into the systemic blood. If this is so, a condition exists in which a primary toxin of unknown origin damages the liver, with the result that substances from the portal blood are allowed to pass unchanged into the systemic circulation, producing a secondary toxaemia which may be the origin of the fits. In this connexion it is well to remember that it is the periphery of the liver lobule which is most affected, the primary toxin probably being brought there by the hepatic artery and taking effect where it is most concentrated. The portal venules are also around the periphery of the lobule, and thus convey their blood directly to a damaged area of the liver, which may be incapable of detoxicating its contents.

Of course, before any portal substances can penetrate the systemic stream, they have to pass normal cells in the centre of the lobule, but these cells represent only a small fraction of the whole, as it is obviously mathematically correct that the cells in the periphery form the majority of the cells in the lobule.

Among its many functions the liver acts as a detoxicator of poisonous substances absorbed from the intestinal canal via the portal vein. Indole and phenol are examples of noxious substances carried by the portal vein: they are products of protein decomposition and are formed in the large bowel by bacterial action on the amino-acids tryptophane and tyrosine respectively. These are detoxicated in the liver by oxidation, and conjugation with sulphuric acid, and pass on to the body, from which they are eliminated by normal kidneys most probably within twelve hours. Indole is conjugated to indican, and consequently the proportion of indican in the urine forms a rough guide to the amount of putrefaction occurring in the large bowel. Thus indican is present in large quantities in the urine of a patient suffering from intestinal obstruction, but apart from such a grave lesion it is found almost invariably in the urine of constipated persons and can be made to disappear therefrom by purgation. The amount of indican in the urine might serve as a guide to the functional capacity of the liver for dealing with portal toxins, especially in subjects of constipation—a condition present in practically all pre-eclamptics or eclamptics. In constipation we have every reason to believe that indole is passing via the portal vein to the liver, which, if functioning correctly, will convert it into indican, and the latter substance will be detected in the urine. If the liver fails to function, no indican should be present in the urine. The absence of indicanuria in a patient who is purged obviously has a different interpretation, and in eclampsia may be due to failure of the kidneys to excrete it.

An interesting experiment was suggested by a Russian surgeon, Eck, and successfully carried out by Pavlov. An artificial opening was made connecting the lumen of the portal vein with that of the vena cava in a dog. The portal vein was then ligated above the anastomosis, so that the blood passed directly into the systemic circulation without passing through the liver. In some of the animals operated on in this way it was found that so long as their diet consisted only of carbohydrates they could be maintained in fair health. If they were given a large meal of meat, many of them became ill and suffered from convulsions which ended in coma. At the same time there was a large increase in the ammonia output of the urine. This condition was supposed by Pavlov to be due to ammonaemia, the liver being regarded as protecting the body from ammonia produced in the intestine by converting it into urea. In this condition—Eck's fistula—the speed and amount of conjugation of bodies such as indole and phenol is greatly reduced.[1]

Slight injury to the liver by chloroform and phosphorus has little effect upon the phenol conjugation, but extensive injury reduces it greatly. Pelkan and Whipple[1] suggest that the fatal result of the Eck fistula experiment or even of chloroform poisoning may be due to the lack of conjugation of phenols. It has been pointed out by Gibbon FitzGibbon[2]—and I have personally confirmed this in my own experience—that the eclamptic patient usually suffers from constipation and indulges in dietetic excesses. Gibbon FitzGibbon lays great stress upon the intestinal overload, and certainly the success of the Rotunda treatment (purges and high colonic washes) confirms this belief. It is also interesting to note that the body weight of patients developing eclampsia increases more than the average.[2] This abnormal increase would be expected in a patient who is overeating. The seasonal variation, being highest in spring, could be explained also in this way, for in the months immediately preceding more meat and more food as a whole are consumed. An eclamptic patient therefore appears to be in a suitable condition to suffer from intestinal toxaemia. She is constipated and overeats, and her detoxicator—the liver—is damaged, which, on analogy with the kidney, may allow noxious substances from the portal vein to pass unchanged into the general circulation, causing a condition closely resembling that found in any animal upon which Eck's experiment has been performed. In such a patient purging and colonic washes will obviously not only eliminate the primary toxin, but cut off the supply of the secondary toxin at its source.

From what has been said above, it will be clear that one might expect eclamptic women, even though constipated at the time, to exhibit either very little or no indicanuria, and this I have almost always found to be the case in the few eclamptics whom I have investigated in this manner.

Summary.

In cases of toxaemia of pregnancy there is present in the circulation a toxin (or toxins) of unknown origin which affects the cells of many organs, interfering with their normal functions. The kidneys, if affected, no longer act as barriers to the passage of certain colloids from the blood into the urine. Should the liver be affected, it may no longer detoxicate portal poisons, but allow either all or some of them to pass into the general circulation, introducing a secondary toxaemia which may be the cause of the convulsions.

REFERENCES.

[1] Pelkan, K. F., and Whipple, G. H.: Studies of Liver Function—(III) Phenol Conjugation as Influenced by Liver Injury and Insufficiency, *Journ. Biol. Chem.*, 1922, l, 513.

[2] Gibbon FitzGibbon: The Relationship of Eclampsia to the other Toxaemias of Pregnancy, *Journ. Obstet. and Gynaecol. of the British Empire*, 1922, xxix, 402.

INCIDENCE OF THE SEROLOGICAL TYPES OF THE PNEUMOCOCCUS IN LOBAR PNEUMONIA.

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THE incidence of the different serological types of the pneumococcus in lobar pneumonia has been studied extensively during the past seventeen years, and the original classification of Dochez, Avery, Gillespie, and others is now accepted by most bacteriologists. In the present article, in addition to a note of recent observations on the incidence of these types in Edinburgh, it is proposed to review briefly the findings of different observers during the past few years.

By protection tests and the agglutination reaction with antiserums Dochez and Gillespie were able to divide strains of the pneumococcus into four groups, designated I, II, III, and IV. Groups I, II, and III were specifically differentiated in this way; Group IV comprised heterogeneous strains which could not be identified immunologically with the other three groups; Group III was also characterized by the possession of a thick mucoid capsule noticeable in the mucoid character of growths in culture media (*Pneumococcus mucosus*). More recently a number of constituent types referable to Group IV have also been identified by certain workers (Cooper, *et al.*), but, as will be shown, in this country such further serological subdivision seems unnecessary from a practical standpoint, though it may be of importance in other countries. The results of Dochez and Gillespie are noted in Table I.

TABLE I.—*The Original Classification of Pneumococci by Dochez and Gillespie.*

	Classification by Protection Tests.		Classification by Agglutination Tests.	
	No. of Cases.	Per cent.	No. of Cases.	Per cent.
Group I	28	45	22	41
Group II ...	12	20	11	20
Group III ...	9	14	9	17
Group IV ...	19	22	12	22

Classification by these two methods was carried out in the same series of cases. The similarity of both sets of results is at once apparent. Of the cases, 77 per cent. were due to pneumococci of the three typical groups, the remaining 23 per cent. being included in the heterogeneous Group IV.

Following on this work a number of other observers have recorded their results from time to time (Table II).

TABLE II.—*Type Frequency of Pneumococci in Lobar Pneumonia recorded by Various Observers.*

Observers.	Period.	Total No. of Cases.	Frequency Percentage.			
			I	II	III	IV
UNITED STATES OF AMERICA:						
Dochez and Gillespie ...	1913	74	47	18	13	22
Cole	1915	150	38	30	11	21
Thomas	1917–21	239	25	11	15	49
Schorer	1917–18	101	31	15	18	36
Cecil, Baldwin, and Larsen	1921–26	1,913	24	19	13	33
Bullowa	1928–29	368	24	9	3	55
GREAT BRITAIN:						
Glynn and Digby	1919–23	361	38	27	4	31
Griffith	1920–22	150	31	33	7	30
Davidson and McLachlan	1924–25	52	64	7	15	14
Ferguson and Lovell ...	1925–27	116	43	4	0	53
Alston and Stewart	1929–30	186	29	40	4	27
SOUTH AFRICA:						
Lister*	1917	148	22 (C)	16 (B)	1 (E)	61 (A, D, etc.)
INDIA:						
Malone	1923–24	106	28	17	8	47
DENMARK:						
Christensen	1923	110	33	27	8	32
NORWAY:						
Thjötta and Hanneborg ...	1924	100	44	33	6	17

These figures, though not a complete statement of pneumococcus type incidence since 1913, are sufficient to show that the incidence of the different types varies greatly from time to time, and in different parts of the world. Types I and II between them account for about 58 per cent. of all the cases, Type III for 9 per cent., while 32 per cent. of the cases are allocated to Group IV. It is interesting to note the relative infrequency of the Type III pneumococcus in lobar pneumonia. The fact that nearly two-thirds of all cases of lobar pneumonia are caused by either a Type I or a Type II pneumococcus is a point in favour of a more general therapeutic use of anti-pneumococcal serum, which is now prepared as a polyvalent serum, containing antibodies for both Types I and II pneumococci.

Incidence of Pneumococci Types in Edinburgh, 1929–30.

During the period January, 1929, to June, 1930, the types of pneumococcus in 186 cases of acute lobar pneumonia were ascertained. In the majority of cases sputum was obtained immediately after the admission of the patient to hospital. In a number of patients with no sputum, where for therapeutic reasons it was necessary to ascertain the type of pneumococcus as soon as possible, lung puncture was performed (Stewart, 1930) and the organism isolated from the "lung fluid." Our method of determining the type was as follows.

One cubic centimetre of a saline emulsion of sputum was injected intraperitoneally into a white mouse of standard weight, and the type of pneumococcus determined according to the usual method of macroscopic agglutination, by the addition of standard typing serum to saline dilutions of peritoneal fluid. The agglutinating serums for the three standard types which we have consistently used were obtained in the laboratory of the Department of Health, City of New York, U.S.A., and were kindly sent to us by Dr. Bullowa of the Littauer Pneumonia Fund Hospital, New York. After a series of titration experiments it was found that the optimum dilutions of these serums for the test were as follows: Type I, 1 in 20; Type II, 1 in 10; and Type III, 1 in 5. Equal parts of peritoneal fluid washings and typing serum were added together, giving final dilutions of Type I, 1 in 40; Type II, 1 in 20; and Type III, 1 in 10. When no agglutination was observed with any of the three typing serums a separate test was made with undiluted Type II serum for the so-called "atypical" strains of Type II, which have been stated to agglutinate only with the maximum concentration of the serum. It has to be noted, however, that in no case have we been able to demonstrate the presence of this atypical Type II pneumococcus by serological methods. In addition, bile solubility tests were performed to exclude streptococci by adding two or three drops of 10 per cent. sodium taurocholate to 1 c.cm. of peritoneal emulsion, and in every test a control tube of emulsion without serum was included. In quite a number of cases agglutination was observed immediately after the addition of serum—in several cases it could be actually observed while the serum was being added—but in every case incubation at 37° C. for a period of time varying from fifteen minutes to two hours was sufficient to enable readings to be taken. In any doubtful case, and in all cases where no agglutination was observed after two hours, further readings were made at varying intervals up to twenty-four and thirty-six hours; the original reading, however, has always proved sufficient.

The results of typing pneumococci in 186 cases of lobar pneumonia admitted to the Royal Infirmary, Edinburgh, are noted in Table III.

TABLE III.—*Type Incidence of Pneumococci in 186 Cases of Lobar Pneumonia, Edinburgh, 1929–30.*

Type.	No. of Cases.	Percentage.
I	53	29
II	75	40
III	7	4
IV	47	27

From these figures it will readily be seen that Type II pneumococci have been most frequently found, that the incidence of Type I and Group IV organisms is about the same, and that Type III pneumococci are not commonly demonstrated in cases of lobar pneumonia. Stewart and Gibson, in a study of 43 cases of lobar pneumonia in Edinburgh, found that the incidence of the types was as follows: Type I, 19 per cent.; Type II, 48 per cent.; Type III, 9 per cent.; and Group IV, 23 per cent. These 43 cases are included in the present series, being among the earlier ones examined in 1929, and it may be seen that Type II pneumococci at that time were even more commonly found than during the year 1930.

It is interesting to compare our findings with the observations of Davidson and McLachlan. They found, during 1924–25, Type I pneumococci in 60 per cent. of the cases, and Type II in only 12 per cent. The type incidence has therefore changed very considerably in this particular area during the last five years, as the Type II pneumococcus is the organism most commonly associated with lobar pneumonia.

Death Rate in Relation to Types.

Certain observers have tabulated their mortality rate in lobar pneumonia in relation to the different types of organism. Although most series are small in number, an analysis of the combined results show Type III infections to have a high fatality rate—between 40 and 70 per cent. Type II infections come second, Type I infections next, and it has been fairly well established that pneumonia caused by organisms in Group IV tends to be associated with a relatively low mortality rate.

Of the 186 cases in our series, 45 died, giving a death rate for all types of 24 per cent. The death rate in relation to types is given in Table IV.

* Lister (1917) in South Africa classified 148 strains of pneumococci from cases of pneumonia, allocating them into eleven groups, each indicated by a letter. The major groups A, B, and C accounted for 31 per cent., 16 per cent., and 22 per cent. of the strains respectively, leaving 31 per cent. in the remaining groups. According to the present methods of classification Lister's Group C would be identical with Type I, Group B with Type II, Group E with Type III, and the other groups, including the large Group A, would all be included in Group IV.

TABLE IV.—*Death Rate in Relation to Type Incidence, Edinburgh, 1929–30.*

Type.	No. of Cases.	No. of Deaths.	Death Rate (Percentage).
I	53	12	23
II	75	23	31
III	7	5	71
IV	47	5	10

It is to be observed that the order of severity is similar to that of other workers. The numbers, of course, are small, and may be insufficient for an exact statistical statement, but it is interesting to note that the death rate in Group IV is as low as 10 per cent.

Summary.

1. A brief review of the incidence of the different types of pneumococci in lobar pneumonia according to a number of observers from 1913 to date is given.

2. The incidence of pneumococcus types in 186 patients suffering from acute lobar pneumonia in Edinburgh during the past eighteen months is recorded, and also the mortality rates associated with the different types.

The authors gratefully acknowledge facilities granted to them by the physicians to the Royal Infirmary, Edinburgh, and thank Professor T. J. Mackie for valuable assistance. The expenses of this work were met in part by a grant from the Moray Fund, Edinburgh University. One of us (J. M. A.) was in receipt of a grant from the Medical Research Council.

BIBLIOGRAPHY.

Bullowa, J. G. M.: Personal communication.
Cecil, R. L., Baldwin, H. S., and Larsen, N. P.: *Arch. Int. Med.*, 1927, xl, 253.
Christensen, S.: *Commun. de l'Inst. Sérothérap.*, Copenhagen, 1923, xiv.
Cole, R. J.: *Arch. Pediat.*, 1915, xxxii, 52.
Cooper, G., Edwards, M., and Rosenstein, C.: *Journ. Exper. Med.*, 1928, xlix, 461.
Davidson, L. S. P.: Proc. Edin. Med.-Chir. Soc., *Edinburgh Medical Journal*, 1925, xxxii, 67.
Dochez, A. R., and Gillespie, L. J.: *Journ. Amer. Med. Assoc.*, 1913, lxi, 727.
Ferguson, F. R., and Lovell, R.: *Quart. Journ. of Med.*, 1928, xvii, 73.
Glynn, E. E., and Digby, L.: Special Report Series, Medical Research Council, 1923, 79.
Griffith, F.: *Journ. Hyg. Camb.*, 1928, xxvii, 113.
Lister, F. S.: Published by the South African Institute of Medical Research, 1917, 10.
Malone, R. H.: *Indian Journ. of Med. Research*, 1925, xii, 565.
McLachlan, D. G. S.: *Journ. Roy. San. Inst.*, 1925, xlvi, 112.
Schorer, E. H.: *New York Med. Journ.*, 1919, cx, 97.
Stewart, D.: *Lancet*, 1930, ii, 520.
Stewart, D., and Gibson, H. J.: *Edinburgh Medical Journal*, 1929, xxxvi, 607.
Thjötta, T., and Hanneborg, D.: *Journ. Infect Dis.*, 1924, xxxiv, 454.
Thomas, W. S.: *Journ. Amer. Med. Assoc.*, 1921, lxxvii, 2101.

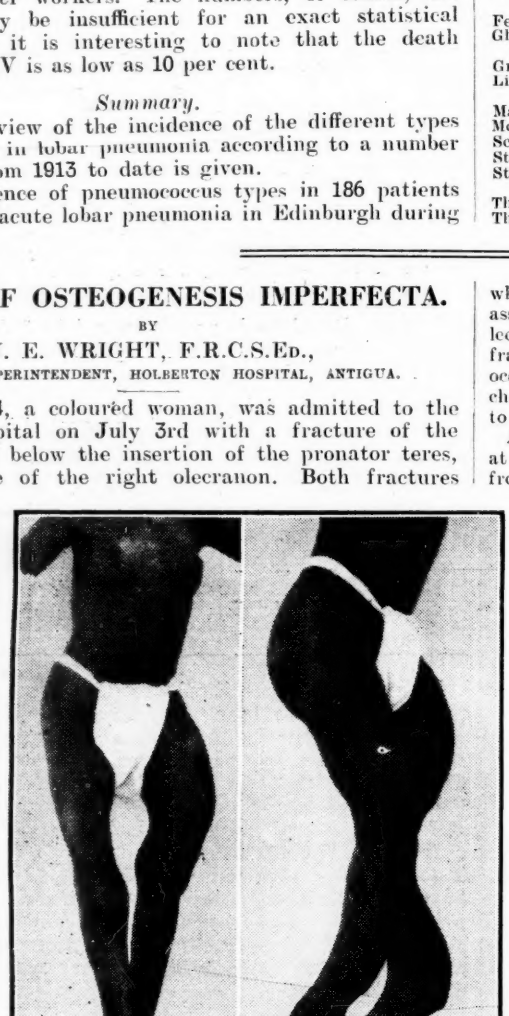
A CASE OF OSTEOGENESIS IMPERFECTA.

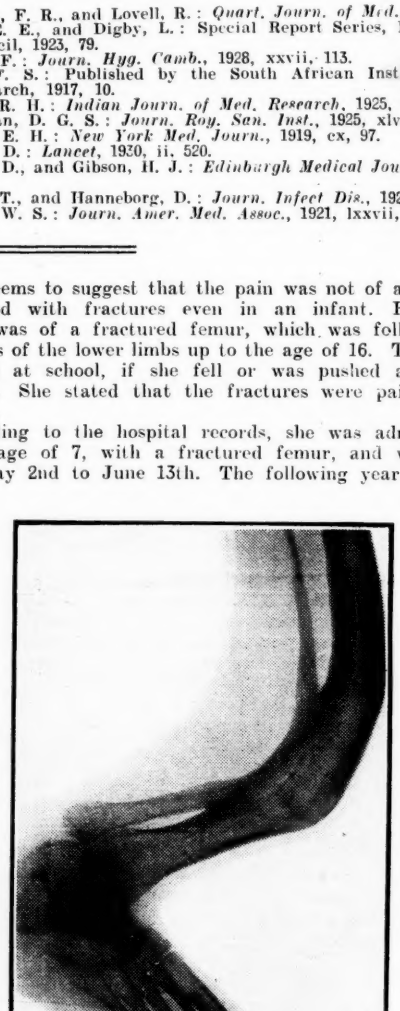
BY

J. E. WRIGHT, F.R.C.S.ED.,

MEDICAL SUPERINTENDENT, HOLBERTON HOSPITAL, ANTIGUA.

L. M., aged 34, a coloured woman, was admitted to the Holberton Hospital on July 3rd with a fracture of the left radius just below the insertion of the pronator teres, and a fracture of the right olecranon. Both fractures were the result of direct violence—by being beaten with a walking-stick. She was unaware that the olecranon was fractured, and complained only of the left arm, which she knew was broken, and a contusion of the left leg. Her complaints of pain in view of pending legal proceedings were not very convincing, as she showed little sign of distress on manipulation. There was also a remarkable absence of swelling, ecchymosis, or muscular spasm.





Family History.

The patient's father was a tailor, who died of senile decay three years ago. He had had no serious illnesses or fractures. Her mother, whose legs were deformed, died some years ago, probably from pneumonia. The mother's sister, thought to be in America, also had deformed lower limbs. A sister and two brothers are normal.

Patient's History.

The patient's mother told her that her legs were broken many times when a baby before she was old enough to feel pain, which seems to suggest that the pain was not of a degree usually associated with fractures even in an infant. Her first recollection was of a fractured femur, which was followed by many fractures of the lower limbs up to the age of 16. These frequently occurred at school, if she fell or was pushed about by other children. She stated that the fractures were painful, and used to swell.

According to the hospital records, she was admitted in 1904, at the age of 7, with a fractured femur, and was in hospital from May 2nd to June 13th. The following year she was again in hospital, from March 27th to May 23rd, with a fractured femur. In 1909 she was in hospital from February 19th to March 11th, the diagnosis being fragilitas ossium. On this occasion fractures were not specifically mentioned, but in view of the diagnosis and her good health in other respects, it is probable that she had a fracture on this occasion also. For some years she was an inmate of the poorhouse, reserved for the destitute and very chronic cases. She did not at any time appear to have been destitute. From the age of 16 until the present time she had had no fractures.

Clinical Examination.

The only thing of note about the patient, apart from the deformities, was the blue colour of the sclerotics, which is very striking in a coloured person. Her height was 4 ft. 10 in., reduced by the shortening of the lower limbs. All the long bones of the lower limbs were grossly deformed, particularly the left femur, which was bowed forwards and outwards, and the right tibia and fibula bowed forwards and inwards—well shown in the accompanying photographs. The anterior superior spines

more practically horizontal when the patient stood erect, and the amount of scoliosis was negligible. The pelvic measurements were: interspinous 7½ in., intercristal 8½ in., external conjugate 6¼ in.

There were deformities on three ribs. The fifth right and sixth and seventh left suggested old fractures, but of these the patient had no recollection. The skull showed no abnormality; the bitemporal and biparietal diameters were rather shorter than average.

The long interval from the age of 16 to 34, during which no fracture occurred to the patient's knowledge, indicates that the tendency to fracture had diminished, since the recent fractures were caused by blows of some violence with the stick the patient used to walk with. She walked about fairly well by the aid of a stick, and earned her living as a washer, which involved standing a considerable part of the day.

Pathology of the Condition.

The disease tends to run in families in 15 to 20 per cent. of the cases, and is associated with a blue colour of the sclerotics, which was markedly present in the case reported.

The foetal type presents the disease in its severest form. If not actually stillborn, these infants rarely survive more than a few months. At birth many have multiple fractures of the long bones and ribs. The vault of the skull is simply a membranous sac, while the cartilage bones of the base are affected to a lesser degree. In most cases death is due to the powerful uterine contractions during labour on a brain so inadequately protected. The bones may show signs of old fractures which took place during intrauterine life.

Rather less severe is the infantile type, which manifests itself soon after birth. Fractures occur with the most careful handling of the child, as in carrying it about. The membranous bones of the skull are so feebly developed that they feel like a "bag of bones." The skull is widened in the transverse diameter, owing to the cranial contents lacking their normal bony support, and shortened anteroposteriorly from incomplete development of the cartilage bones of the base, giving the head a hydrocephalic appearance.

Sometimes the appearance is delayed until adolescence is reached, and it is then described as osteogenesis imperfecta tarda, which shows itself by the frequency of fractures from trivial causes. In this type the skull is fairly well formed, except for the late closure of the fontanelles. The case under review would appear to fall within this class.

An adult type is also described, in which the tendency to fracture appears only later. This might be a mild form of the disease, possibly overlooked in earlier life, or in the nature of a relapse, if the disease is to be regarded as a failure in development. The deformity is caused rather by multiple fractures with malunion; others may be partial or subperiosteal rather than the bending of softened bones, as in rickets, osteomalacia, and osteitis deformans. *X* rays show evidence of old fractures in this case.

Except in the foetal type, most of the fractures and consequent deformity occur in the lower limbs. The tendency to fracture diminishes with age in those who survive. Fractures are less painful and ecchymosis is less marked than in the normal individual, usually uniting in normal time, but generally with deformity after repeated fractures. Some partial fractures may pass unnoticed, aggravating the deformity, particularly where the alignment of the bones is already imperfect. Histologically the epiphyseal line is straight and the proliferation of cartilage cells normal, and the fault seems to lie primarily with the osteoblasts which have failed to develop. The preliminary stages of bone formation are laid down, but the process is arrested by the failure of the osteoblasts to complete the work of bone formation. The periosteum is thickened, but cartilage cells in their capsules take the place of developed osteoblasts. The Haversian canals are replaced by a fatty marrow, resulting in a thin red and porous cortex of imperfectly formed bone.

Treatment.

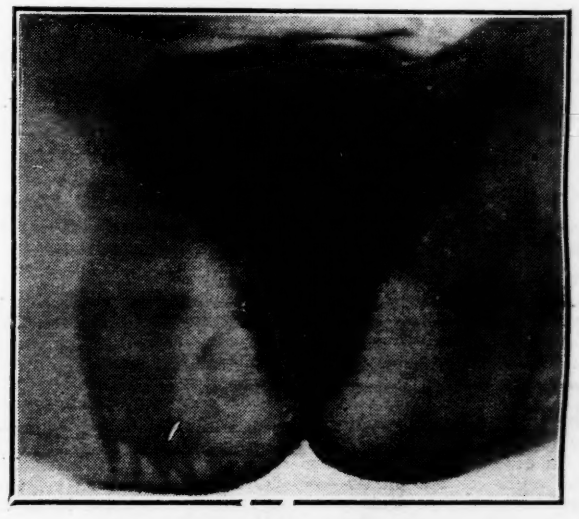
No treatment has any apparent effect on the course of the disease. Special care should be taken at school. Fractures should be treated as they arise, with particular regard to correct anatomical alignment in reduction. The possibility of partial or subperiosteal fractures should always be borne in mind in these cases after any injury, however slight.

Memoranda:
MEDICAL, SURGICAL, OBSTETRICAL.

PARTURITION PER PERINEUM.

We wish to record the occurrence of what appears to be a unique case in the history of perineal tears.

Mrs. B., 2-para, was attended in her home by the outdoor house-surgeon. The infant was born to the umbilicus before assistance arrived, labour having been precipitate. The child (weight 7 lb. 2 oz.) was not born *per vias naturales*, but through an extensive perineal tear (see photograph reproduced herewith).



The tear was found to involve the posterior and lateral vaginal wall, the levator ani, and the transversus perinei. It extended laterally to the left two and a half inches from the central tendinous point of the perineum to the groove between the labium majus and the thigh, and to the right one inch from the same point. The anal sphincter was not involved, and there was very little haemorrhage.

The patient gave a history of having had an extensive tear at her previous confinement, which took place abroad. This possibly constituted a contributory factor.

We desire to thank Professor James Hendry for giving us access to this case.

Andrew Tindal, M.B.,
House-Surgeon,
H. R. MacLennan, M.B., Ch.B.,
Resident Obstetric Officer,
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Glasgow.

AN ABNORMAL LARGE INTESTINE WITH IMPERFECTLY DESCENDED OVARIES.

The following case of arrested development of the large intestine, together with imperfect descent of the ovaries, is, I think, worthy of publication.

A girl, aged 15, was admitted to the Royal Hants County Hospital complaining of attacks of pain in the right side of her abdomen. A provisional diagnosis of recurring appendicitis was made.

At operation the right ovary was found lying in the iliac fossa on a level with the anterior superior spine of the ilium. It was roughly cylindrical in shape, and possessed a rectangular mesovarium about two inches square, springing from the peritoneum of the iliac

fossa, and separate from the broad ligament. The ovary measured about two and a half inches by three-quarters of an inch; its surface was unusually smooth and glossy, but signs were present of a recently ruptured follicle. The left ovary was then examined and found to be similar in situation and constitution. Except for extreme length, the Fallopian tubes were normal, their ostia lying adjacent to the proximal poles of the ovaries. The uterus was not fully developed, but showed no obvious abnormality.

The caecum and appendix were next sought for, but could not be found in the right half of the abdominal cavity. The caecum was finally discovered lying in relation to the greater curvature of the stomach, with a long bulbous appendix attached. The large intestine consisted therefore of the caecum, followed by a length of about four inches of colon—to which was attached a thin and scanty great omentum—leading direct to the splenic flexure. From that point to the rectum nothing abnormal was found, except that the sigmoid flexure was extremely large and reached well over to the right side. The kidneys showed foetal lobulation, but were not joined; no further internal abnormalities were discovered.

Externally the girl was well developed for her age, and devoid of malformations.

More special inquiry into the patient's menstrual history elicited the information that her periods had started three months previously and had so far been regular. The abdominal pain was thought to have been particularly severe at these times, and this fact would seem to indicate that the symptoms for which she was admitted to hospital were most probably associated with the malposition and abnormal development of the ovaries.

Winchester. B. HENZELL PIDCOCK, M.B., F.R.C.S.Eng.

IMPLANTATION OF CARCINOMA BY AN OPERATION.

THE following notes of a case of an unusual form of recurrence of growth, following an excision of part of the colon for carcinoma, are, I think, of sufficient interest to merit publication.

A man, aged 36, had had, eighteen months previously, two operations for abdominal trouble. In the first one, the bowel was drained through an incision in the right iliac region, and on the second occasion a growth was excised from the descending colon. Since then he had been quite well until a few weeks before seeing me, when he had vague abdominal pains, occasionally feelings of abdominal distension, and once, during an attack, he vomited.

On examination I found two scars: a left paramedian incision, and a smaller one on the outer side of the right rectus, which had obviously had drainage through it. Beneath the latter scar I detected a tumour, firm to the touch, dull on percussion, and slightly tender.

A right paramedian incision was made, and the caecum was found adherent to the abdominal wall by several fairly dense bands. These were divided, and the caecum was completely freed, except for the appendix, which was anchored on to a dense hard mass adherent to the under surface of the old scar. I divided the appendix at the base and invaginated it in the orthodox manner. I then excised the appendix and tumour in one piece, together with the skin incision to which it was adherent. There appeared to be no evidence of infiltration of the tumour through the parietal peritoneum. I then examined the anastomosis in the descending colon. This was patent and free from adhesions, and there were no adhesions to any other part of the abdominal cavity, or evidences of metastases in the liver, spleen, glands, mesentery, omentum, or pelvis. The incision was then closed; the patient made an uninterrupted recovery.

Examination of the tumour showed a mass of what appeared at first sight to be chronic inflammatory tissue and adhesions, with the appendix running right through the centre of it. A stained section under the microscope showed definite adenocarcinoma. Some months later he returned, with evidence of recurrence in the pelvic peritoneum and glands.

In view of the fact that at the time of operation I could find no other evidence of growth in the abdomen, I can only conclude that at the previous operation an appendicostomy had been performed after the original growth had been handled by the operators, and that carcinoma had been implanted round the appendix at the same time. If this is so, it is a reiteration of the fact that one cannot be too careful in the precautions taken when operating upon cancer or other allied new growths.

J. R. NICHOLSON-LAILEY, M.B., Ch.B., F.R.C.S.,
Honorary Surgeon to Taunton and Somerset Hospital

Reports of Societies.

DIAGNOSIS AND TREATMENT OF MALIGNANT DISEASE OF THE CHEST.

AT the meeting of the Medical Society of London on November 10th, with Dr. R. A. YOUNG in the chair, Dr. CHEVALIER JACKSON of Philadelphia opened a discussion on this subject.

Dr. Chevalier Jackson said that the bronchoscopist lacked the broad viewpoint of the internist and the surgeon. Therefore he himself could not hope to present comprehensively such a subject as the one for discussion that evening. When it came to a foreign body in the lung the bronchoscopist felt himself entitled, out of his large experience, to speak. There was, however, some consolation in the fact that clinical experience was always clinical experience, and clinical facts were always of value. Experience was what one got when one was looking for something else, and that was particularly true in cancer of the lung. All discussion on cancer in any site began and ended with early diagnosis; probably also that applied to other things besides cancer. Dr. Jackson proceeded to show on the lantern screen the radiographs of various cases of malignant and semi-malignant growths encountered in his bronchoscopic clinic. The growths included chondroma, chondro-osteoma, endothelioma, carcinoma, sarcoma, lymphosarcoma, lymphomyoma, and neurofibroma. He mentioned that when, forty years ago, he first saw a case of cancer of the oesophagus, he thought there was a great era ahead for the treatment of such a condition. The mortality was at that time 100 per cent., and it was still 100 per cent. to-day. He mentioned that only by way of contrast. Cancers of the oesophagus were not sensitive, apparently, to *x*-ray treatment, whereas many cancers of the lung seemed to be radio-sensitive, though there were others in which the rays had no effect. His experience at his bronchoscopic clinic was that there were some malignant growths in the lung which were of a very low grade of malignancy, quite amenable to treatment, and sensitive to *x* rays. Whatever might be thought of the operation of lobectomy, there was this to be said—that it had never had a fair chance, because the cancer of the lung was practically never diagnosed sufficiently early. Diagnosis of pulmonary cancer was usually very late, and always would be so unless every patient with pulmonary disease was examined with the bronchoscope. He proceeded to discuss the valvular action of the bronchus, repeating to some extent the remarks he made in his lecture at the Royal Society of Medicine on October 14th (extensively reported in the *British Medical Journal* of October 25th, p. 702). He mentioned that a wheezing sound plainly heard when the examiner's ear was close to the patient's open mouth, but not heard at the chest, might be a significant sign in the diagnosis of pulmonary cancer, though at the same time it might denote other conditions, some of them trivial. In conclusion, Dr. Chevalier Jackson said that he was not very enthusiastic about the implantation of radon seeds in the lung, nor, indeed, about any line of treatment of cancer. Mechanically it was easy to insert radon seeds, but he was not at all certain as to how much could be done in the way of curing cancer by this method. It seemed to him that lobectomy and radiology had to be looked to for alleviation until more was known about the etiology of cancer and the methods of treatment. It was a platitude to say that the diagnosis of cancer should be made early, but it was not so well known that the only way of making an early diagnosis of cancer of the lung was to put in the bronchoscope. It seemed to him that the greatest good would accrue from the close co-operation of the surgeon, with his broad point of view on the general problem of cancer; the internist, who could look and listen on the outside; the radiologist, who could in a sense look through the patient; and the bronchoscopist, who could look inside the lung.

Mr. V. E. NEGUS said that there was an erroneous impression in this country about the work of Dr. Chevalier Jackson—namely, that it was principally concerned with

the removal of foreign bodies. Cases of foreign body in the lung or bronchus were of diminishing number. In more than 200 bronchoscopies which he had himself done, only five were for a foreign body. The method which Dr. Jackson had outlined required a certain amount of attention to detail if one was going to do it with any measure of success. One of the great reasons for the success which Dr. Jackson had attained was his meticulous attention to detail. Physicians had certain doubts as to whether bronchoscopy was a suitable method, mainly because it was frequently thought that a general anaesthetic was necessary for such procedures. He himself in his own practice gave the patients mercury and scopolamine, with excellent results. In all the cases he had been asked to examine it had been possible to make a definite diagnosis—either to say that the patient had not got carcinoma or that he had. If one was allowed to examine enough cases of suspected carcinoma of the lung there would be a proportion of cures when the growth could be removed completely, and in other cases the patient's comfort might be greatly assisted, so much of his distress being due to mechanical obstruction.

Dr. J. F. BRAILSFORD showed a series of radiographs illustrating a case of carcinoma of the rib, and Mr. HERBERT TILLEY also showed slides of a case in which the symptoms had strongly suggested malignant disease, but which turned out to be a case of benign growth—a papillary granuloma.

Dr. T. S. NELSON said that the present line of treatment of lobectomy and radiation of the growth through a thoracotomy failed largely because the glands to which the growth drained in the mediastinum were not irradiated. He described some attempts which he had made to irradiate the glands. He had proved that radon seeds could be pushed into the glands directly through the bronchial wall. His method of introduction was to use a diathermic current of low milliamperage, and with this it was possible to drive radon seeds through the bronchial wall into the mediastinum, without setting up mediastinitis. He described two cases which he had treated in this manner, and in which the results, so far as they went, had indicated possibilities of success.

Mr. J. E. H. ROBERTS felt that surgery in the way of operative removal was not, and probably never would be, of much value in the large majority of cases of carcinoma of bronchus and lung. The future lay in radiation either by means of *x* rays or by radium or radon. There was a certain amount of evidence that radiation by means of *x* rays did good, at any rate for a time; in many cases, however, it did no good at all. He had one case in which the patient had a sarcoma of the upper lobe of the lung which had spread through the chest wall, and there was a mass in the axilla and another mass pushing forward the pectoral muscle. He inserted seventy-three radon needles, and the whole thing disappeared. It was a large round concealed sarcoma. The patient died of another affection altogether eighteen months later, and on post-mortem examination no sign could be found of any sarcoma. The problem of inserting radon seeds through an open thoracotomy was not a simple one, because in a large percentage of cases infection was already present in the pulmonary airways and tissue, and if the lung was to be punctured through an open thoracotomy wound there was grave danger of producing pyothorax. Mr. Roberts exhibited a special introducer, with a magazine whereby twelve seeds could be implanted one after the other. The insertion of radon seeds into these growths in the lung had been done in a rather haphazard way. If carcinomas of the lung were to be irradiated in the same way as carcinomas of the breast or of the uterus, an accurate estimate of the volume of the carcinoma must be first made, and the seeds must be inserted in regular rows spaced throughout the growth.

Mr. TUDOR EDWARDS referred to a paper read by him at the Annual Meeting of the British Medical Association at Winnipeg, in which he had recorded 116 cases of growths in the lung, of which eight only arose in the peripheral portions of the organ. In three of these, one an epithelioma and the other two endotheliomata—he had attempted removal. Now and then a secondary growth was found which justified removal; generally secondary deposits were multiple, but occasionally a single one was found. From the point of view of radium or radon, he thought the right approach for the peripheral type of growth was by an exploratory thoracotomy, and radon seeds offered a better hope than implantation of radium tubes, which had afterwards to be removed. He had been using a diathermy introducer for the purpose. Bronchial growths were a different problem; there the possibility of removal was much diminished, because they usually arose very near to the main bronchi. He expressed himself as rather disappointed with *x*-ray treatment of pulmonary growths.

Dr. G. VILVANDRE said that of the new growths of the lung made visible by *x* rays 90 per cent. were carcinomas. These growths, when first seen by the radiologist, were very large—so large that they appeared to be hopeless from a therapeutic point of view. If treatment by radon seeds was to be attempted in carcinoma of the lung it was necessary to put in a large number of them—say fifty or more in a certain size of carcinoma. The only alternative was to get the case quite early before the carcinoma had spread, and here the surgeon and the radiologist and everybody else were at the mercy of the general practitioner, who was quite able to diagnose the very early cases if he were taught to do so.

The PRESIDENT, in summing up the discussion, said that many of them felt that these cases were becoming more common, and that the increasing frequency of recorded cases was not wholly accounted for by the improved methods of diagnosis. *X* rays were very valuable in showing the localization of the growth; lipiodol gave the outline, but bronchoscopy did undoubtedly show sometimes the actual situation of the growth, when the carcinoma was a bronchial one, and also its effects. He was sure that all chest physicians welcomed this new aid in diagnosis, but he as a chest physician himself would appeal to the bronchoscopist and surgeon for further help in these most distressing cases. He had been somewhat disappointed with *x* rays in treatment, and more was to be hoped from radium and radon. He expressed the great pleasure of the Fellows of the Society at having amongst them such a distinguished visitor from the other side of the Atlantic as Dr. Chevalier Jackson.

THE USES OF MERCUROCHROME.

AT a meeting, on November 11th, of the Section of Therapeutics of the Royal Society of Medicine, with Dr. PHILIP HAMILL in the chair, a discussion on the uses of mercurochrome was opened by Dr. J. H. BURN.

Dr. Burn said that at the request of the Pharmacopoeia Commission, and in conjunction with Mr. G. K. Elphick, he had undertaken the investigation of mercurochrome 220 soluble as it was found on the market. The substance had originally been obtained by White from dibromofluorescein and mercuric acetate, and was regarded by him as dibromo-oxymercuri-fluorescein. Young, White, and Swartz had recommended it as a urinary antiseptic in America, and Eyre, Notton, and Pope had published successful results following its use intravenously in puerperal septicaemia and mastoid disease. This second group of observers had also investigated four commercial samples of mercurochrome chemically, and had found that, while theoretically mercurochrome should contain 26.7 per cent. of mercury, 21.3 per cent. of bromine, and no acetate, in one of the samples analysed mercury was present in the proportion of 40.9 per cent., bromine 11.4 per cent., and acetate 7.5; other samples were considerably, though less strikingly, wide of the mark. They pointed out that modifications in the method of manufacture might lead to the presence of various impurities, such as salts of mercury, dibromodioxymercuri-fluorescein and others. The same workers had published the results of toxicity tests, but they had made their experiments on rabbits, which could not be used in sufficiently large numbers to give conclusive results.

Working with mice Dr. Burn and his colleague had been able to carry out a large number of experiments on the toxicity of eight commercial samples of mercurochrome, of

which, it was ascertained, at least five came from different manufacturers. Dosage was measured in milligrams per kilo of body weight. With a given sample it was found that 70 mg. per kilo of body weight injected intravenously into a large number of mice caused the death of 10 per cent. within seven days; 150 mg. per kilo injected into the same number was fatal to all. From these results it was possible to estimate the average lethal dose, or the amount of mercurochrome per kilo of body weight which would produce the death of 50 per cent. of the animals. The results with two of the preparations might be expressed as follows:

Results with Sample A.

Dose in Milligrams per Kilogram.	Number of Mice Injected.	Percentage Mortality Within Seven Days.
75	10	100
45	60	71.6
30	30	30
20	10	0
Results with Sample H.		
160	30	83.3
140	30	60
120	30	20

The average lethal dose of A was 37 mg. per kilo, while that of H was 138 mg. per kilo; in other words, A was 3.73 times as toxic as H. A few years ago there had been agitation over the standardization of neosalvarsan, and, as a result, a variation of toxicity of more than 20 per cent. was now considered to be serious. In the case of mercurochrome the range of toxicity of samples on the market was considerably higher than this. Five out of the eight samples, however, had a toxicity such that the average lethal dose was not less than 105 mg. per kilo, and this was suggested as a suitable minimum which should be demanded in standardization, while the sale of samples more toxic than this should be discontinued. It was observed that the least toxic sample contained the amount of mercury which approximated most nearly to the theoretical, but the quantity of mercury was in no sense proportional to the toxicity, and could not be taken as an indicator. The least toxic samples were not necessarily produced by the biggest firms, and it was evident that the manufacturers were not applying toxicity tests of any value. It was the business of the medical profession to demand standardization.

Sir William Willcox pointed out that mercurochrome was a toxic drug which was used particularly in desperate cases, and when a good result followed its use it was not easy to say whether it was *post hoc* or *propter hoc*. It was difficult to judge the effect of a drug in a toxic condition, and a physician was continually impressed with the ease with which, in critical cases, a small thing might turn the scale unfavourably, and provoke, say, a fatal haemorrhage. Mercurochrome was a toxic preparation, if only on account of the mercury which it contained. As a toxicologist he had frequently observed the patient who, after a dose of five grains of mercuric chloride, appeared to recover, with complete subsidence of gastro-intestinal symptoms; yet on the fourth or fifth day suppression of urine inevitably set in and the patient died of uraemia. Mercury, moreover, might provoke a severe type of ulcerative colitis, and was a liver poison. By means of experiments on animals and humans, and by bactericidal tests, the use of mercurochrome had been investigated at St. Mary's Hospital, and the conclusion had been reached that it reduced the bactericidal power of the blood. He thought this drug should be relegated to the time when it was known to be standardized, and when it was not only harmless to the normal person but to the patient in extremity.

Dr. E. P. Poulton had given mercurochrome intravenously to a child with a congenital heart lesion upon which had supervened an infective endocarditis. He had found it to do neither harm nor good, and Dr. Hamill endorsed that view of the effects of the drug. Dr. Izon Bennett had used it in a case of septicaemia without result. Some weeks after it was stopped the man had developed a fixation abscess spontaneously.

Mr. K. W. Heritage had found mercurochrome to be valuable when given intravenously in cases of appendix abscess where the patient ran a swinging temperature following operation. The temperature usually settled completely after the third or fourth injection. As a wash-out for the renal pelvis in cases of pyelitis it was disappointing, but in intractable cystitis with frequency of micturition and pyuria he had had good results from its use as a wash, especially among women.

In reply to Dr. H. S. Stannus, who asked whether the virtue of the drug lay in the mercury, or whether any special blessing was to be attached to the fluorescein, Dr. Burn said that he believed mercurochrome was supposed to have specific bactericidal properties as an individual compound. He knew of no form in which mercury had been omitted.

Dr. Stannus also raised the point of investigating the renal function before the drug was given, since mercury was supposed to be the important agent. Recent investigation of the importance of some of the arsenical preparations in trypanosomiasis had revealed the fact that results were due not to the arsenic, but to a member of the benzene group.

Dr. L. C. Rivett had employed mercurochrome intravenously in puerperal sepsis with disappointing results. When the infecting organism was a streptococcus, particularly when it was haemolytic, he had observed no reaction from the use of the drug. There was more hope if the infection was due to *Bacillus coli*. As a local application mercurochrome was undoubtedly of benefit, and he had known some cases of chronic cervicitis to respond marvellously when treated with the drug in the form of a douche or a paint. He had not used it for acute gonococcal cervicitis or for pyosalpinx.

Dr. G. Graham asked for details of the bactericidal powers of mercurochrome, and wished to know whether addition to blood rendered it more potent. Dr. Burn, replying, referred him to the original paper by Young, White, and Swartz. He reminded his hearers that the difference of toxicity of the various samples was not an argument against the ideal use of mercurochrome. It could be remedied by the manufacturers, and it was the business of the medical profession to demand that toxicity should be uniform.

Dr. Graham suggested that it was the business of the body responsible for the *Pharmacopoeia* to demand standardization. Dr. Hamill replied that, while it was one of the functions of the members of that body to define drugs in common use, they were at liberty to omit any drug not extensively employed if they saw fit. It then became the responsibility of the medical profession to demand standardization by the manufacturers.

VASCULAR TUMOURS OF THE BRAIN AND SPINAL CORD.

At a joint meeting, on November 13th, of the Sections of Neurology and Ophthalmology of the Royal Society of Medicine, with Dr. Leslie Paton in the chair, a discussion on vascular tumours of the brain and spinal cord was opened by Dr. A. Lindau of Sweden.

Dr. Lindau said that the recent classification of these tumours into angiomatous malformations and haemangioblastomas, by Cushing and Bailey, signified a great advance, as the two types differed from each other in site, histological picture, and clinical signs, and required different treatment. Those in the first group showed traces of compressed glious nervous tissue between the vascular loops; they were met with in both the brain and the spinal cord, and might occur as part of a systemic disorder with coexistent trigeminal naevi, unilateral glaucoma, and homolateral pial angioma showing a tendency to calcification on *x*-ray examination. In some cases the angioma extended to the ventricle, and death might be by haemorrhage. The syndrome often occurred in young children, and four Scandinavian cases had been reported, but a

family history was only found in a few cases. The condition was a hemilateral, local, vascular malformation of the cavernous type, situated at the brain surface and in the skin. The second group, or haemangioblastomas, were neoplastic, and in France were called angioreticulomas. Their recognition was of recent date, and they were situated in the cerebellum or occasionally in the medulla; they were not found in the cerebral hemispheres. They were often yellow, owing to lipoid infiltration, and were usually associated with a cyst, in the wall of which they lay. Microscopically there was a sharp demarcation between the tumour and the nervous tissue; the tumour consisted of swollen endothelial cells with more or less tendency to form vessels. Perdrau's staining revealed a reticulum derived from the endothelial cells, and in most cases the intercapillary tissue was rich in foam cells produced by the phagocytosis of lipoid material from the stagnant lymph. These tumours had a high exudative power, which was responsible for the production of cysts; only operative excision of the growth could prevent the cyst from filling. The growths might be multiple in the cerebellum, medulla, or cord, suggesting a congenital origin. In some cases capillary angiomatosis of the central nervous system was associated with angioma of the retina and cysts of the pancreas, kidney, or suprarenal. These cysts of abdominal organs gave no symptoms during life; they were not vascular in origin, and gave rise to no metastases; a family history was present in 20 per cent. of these cases. Angiomas of the retina were first recognized in 1894; secondary changes in the growths made diagnosis by the ophthalmoscope difficult, and often led to detachment of the retina. In one of these cases he had examined serial sections of the eye, and had found two small tumours in which no secondary changes had occurred, but which were unmistakable when impregnated with silver. In most cases the cerebellar lesions were the only ones present, but when retinal angioma coexisted pre-operative diagnosis was possible. There was a possibility of definite cure in some cases, but it must be remembered that lesions were often multiple, and subsequent symptoms might develop. The subdivision of vascular growths of the brain into two groups was now well established, and both groups might be associated with systemic conditions—angiomatous malformations with lesions of the brain and skin, and capillary angiomas of the cerebellum and retina with lesions of the abdominal organs. The two varieties were never coincidental in the same family.

Sir PERCY SARGENT said that tumours in the first group were derived from blood vessels, and in the second from haemoblastic tissue. He preferred to retain the name haemangiomata for tumours in the first group. The vessels in these cases belonged to the pia mater, and the tumours were usually superficial, and when calcified might be seen radiographically. He had had six cases of this kind, five in the temporal, parietal, or occipital lobes, and one in the cerebellum. On two he had operated, but had ligatured no vessels; one, however, professed himself pleased with the result, and had lost his headaches. In four he had ligatured some of the vessels; when this was done there was always a subsequent temporary increase of paresis of greater or less degree. Ligature of the internal carotid had not been successful. All his cases were still alive, but death in this condition was usually due to haemorrhage. He also described cases occurring in the spinal cord; here the symptoms were apt to vary, sometimes from hour to hour, and the history might extend over periods of years with long remissions of symptoms. It was doubtful whether operation was of value in any case; symptoms were not wholly due to mechanical pressure, but to changes in circulation in the vessels of the cord; ligation was harmless but ineffective. Intermediate between these tumours and haemangioblastomata were capillary naevoid growths in the choroid plexus. In 10 per cent. of haemangioblastomata cysts were present, and the growth might be so small as to escape notice. He described the case, found in the literature, of a girl, aged 20, who had complained of failing vision for three months. There was an account of a head injury seven years previously; double optic neuritis was present, and she became blind. There was no weakness, inco-ordination, or nystagmus. A sister had died following two fits, and this girl also died suddenly. Post mortem a cyst was found in the right cerebellar lobe, in the outer wall of which was a tumour the size of a shilling, yellow in the centre, vascular towards the periphery, and reaching to the pia mater. This was a case reported by Hughlings Jackson in 1872.

Mr. TREACHER COLLINS said that angiomatous formations in the eyeball occurred in connexion with either the retinal or ciliary blood vessels. Those of the retinal vessels, like those of the cerebral vessels, might be either angiomatous formations composed of fully formed vessels which could scarcely be called tumours, or angioblastomata composed of the cellular elements of blood vessels, undeniably neoplastic. In the first class the fully formed vessels were unusually tortuous and the condition was often associated with facial naevi, sometimes with symptoms of cerebral pressure presumably due to a similar vascular formation within the skull. In the second class, a raised mass with a dilated companion artery and vein was seen in the fundus, and was composed of rudimentary capillary vessels and intercapillary endothelium. The condition was often associated with cystic vascular growths in the cerebellum. He was able to show a series of interesting slides illustrating the fundus in both these conditions. A retinal haemangioblastoma was a mesoblastic neoplasm growing in a neuro-epiblastic structure. When the endothelial proliferation exceeded the vascular formation a haemoangio-endothelioma resulted. If there were large numbers of the endothelial cellular elements present, the tumour was more likely to become malignant. In any case the affection was always progressive; cysts formed, haemorrhage and blindness resulted. The apparent occurrence of fresh formations in the retina threw a doubt on the congenital origin of the condition, but Dr. Lindau had shown that these might arise from tumours too small to be detected ophthalmoscopically. The growths were likely to give rise to haemorrhage into the retina or vitreous; exudation between the choroid and retina might subsequently be fibrosed, with the production of white plaques. Angiomata connected with the posterior ciliary vessels in the choroid were usually cavernous, and occurred in association with facial naevi. They tended to become encapsulated by a fibro-osteogenetic membrane. The anterior ciliary vessels were sometimes involved in angiomata of the face; frequently there was obstruction to the escape of intra-ocular fluid, and glaucoma resulted. Several cases had been recorded of facial naevi and buphthalmos on one side with contralateral epileptic symptoms. Intracranial haemangiomatosis might give rise to ocular symptoms due to increased intracranial pressure alone, and not associated with retinal changes.

Dr. J. G. GREENFIELD suggested that the term haemangioblastoma gave the impression of a growing tumour, and as these tumours frequently remained very small he proposed that the name "capillary haemangiomata" should be retained for them. In many cases of symptoms due to the presence of these tumours there was a well-defined history of a head injury; it was possible that they remained latent until trauma of some kind caused the onset of the exudation which determined cyst formation. He described several interesting cases of the condition.

Dr. G. RIDDOCH said that although these haemangioblastic tumours were congenital they rarely gave rise to symptoms until middle life. The solid or cavernous types declared themselves earliest, the average age being 24, and his youngest patient 12. The cystic type usually gave rise to symptoms at an average age of 39, and were more common than the solid type. Once disorders of function appeared the course was more rapid with the cystic type. Early signs were intermittent hydrocephalus, paroxysmal headache, a creeping sensation in the suboccipital region, early morning cough, nausea, and vomiting. The headache might precede any oedema of the disc. Cerebellar signs developed late, unsteadiness being the commonest; they appeared in the order: stiffness of the head and neck, unsteadiness, and, finally, slight hypotonia.

Dr. DOROTHY S. RUSSELL described two kinds of vascular tumour found above the tentorium cerebelli: the cirsoid or haemangiomatous type, and the cavernous type. She described an example of capillary haemangioma lying at

the level of the seventh and eighth cervical segments which showed reticulum, no capsule, and tongues of glia extending into the tumour. The cavernous haemangiomata found above the tentorium consisted of closely packed blood spaces, and appeared to have no connexion with the meninges; they formed no cysts and were not encapsulated; the blood spaces were thin-walled and there was often a striking production of collagen reticulum. Frequently the blood spaces were separated by strands of glia, and in one case there was a development of bone trabeculae in the collagen. In two cases she had found associated abdominal lesions taking the form of kidney malformations and islets of suprarenal tissue, with cyst formation, in the kidney cortex. These tumours, then, showed non-encapsulated capillary and cavernous spaces, separated by glia and by collagen reticulum, but with no evidence of endothelial proliferation; glia might be found in the true haemangioblastomata, and if reticulum was to be the criterion of recognition, there was a danger of confusion. There was no doubt that these tumours formed a group distinct from the subtentorial growths and from the cirsoid angiomata, but their connexion with Lindau's syndrome must at present remain open.

Mr. L. B. RAWLING described the case of a boy who had an angioma of the frontal lobe; at operation no vessels were ligatured, but five years later he had appeared with a haematoma over the right side of his face. This had subsided, and he was now well. He was able to quote the histories of other cases of the same kind.

Dr. PARKES WEBER asked what was the type of angiomatous conditions of the skin when they were found associated with the cerebellar haemangio-endotheliomata of Lindau's disease. He would expect them to be either haemangio-endotheliomata or haemangio-xanthomata, and would like to know whether this was indeed the case. He would also like to know the nature of the cystic condition of the kidney and pancreas when it was found in association with this syndrome.

Dr. H. COHEN showed some of the radiographic changes in the skull which might be found in cases of angiomata; and Dr. W. G. BARNARD described a case of capillary angioma found above the tentorium, which on section was similar to the other cases described.

In replying, Dr. LINDAU agreed that a history of trauma was often recorded. He believed the haemangio-blastomata to be congenital, and thought the apparently fresh development of previously unsuspected growths in the retina was due to their small size in the early stages. He was interested in Miss Russell's cases, especially those where cavernous angiomata of the brain had been found associated with cysts in the kidney, but he did not think they formed a link between angiomatous malformations and capillary haemangiomata. A cystic pancreas was not found among her cases, and he thought it was still wise to keep the groups distinct. Naevi in the skin associated with capillary haemangiomatosis were rare, and no histological examination had been made of them in the two cases recorded. The cysts found in the kidney were not related to the congenital polycystic condition.

THE STUDY OF HYSTERIA.

IN the Section of Psychiatry of the Royal Society of Medicine, on November 13th, Dr. S. A. KINNIER WILSON delivered an address from the chair entitled "An approach to a study of hysteria."

Dr. Kinnier Wilson began by remarking that possibly the outstanding feature of hysteria as revealed by the records of former generations and the knowledge of the present was the changes which its clinical syndromes had undergone. The mediaeval ecstatic, simulating in hands and feet the nail-prints of her Redeemer, was long since forgotten, as was her eighteenth century sister, melodramatically counterfeiting the emotional transports of a popular actress. The speaker quoted an account of a visit by Mrs. Siddons to Edinburgh, when there were repeated scenes of fainting and hysteria among the girls and women in her audiences. The chronicler told how a popular surgeon was most reluctantly getting out of the pit to attend some fashionable female, when a friend said to him in passing (alluding to Mrs. Siddons): "This is glorious acting, Sandy," to which he answered, looking round at the fainting and screaming ladies in the boxes, "Yes, and a damned deal o't, too." "To-day," said Dr. Wilson, "we seek the clue to the ailment in the unseen psyche, and she [the poor hysteric] is somewhat at a loss accordingly; her elaborated somatic manifestations are rather at a discount. A cold scientific environment besets her, instead of a world of emotional extravagance and unlimited credulity. So a defence-hysteria is now well *à la mode*, no less egocentric if more utilitarian; with an eye on the main chance, the hysteric turns to the possibility of compensation for trauma, or seeks to escape from unpleasant reality by a flight into neurosis—at least, so we are assured. The times have changed, and we, both physicians and hysterics, have changed with them." Yet when all was said, it remained true that if hysterical fashions varied, their kaleidoscopic patterns were composed of unaltering instinctive and impulsive reactions. Thus its clinical characters could be recognized on the Greek vase depicting the ecstasies of the frenzied maenad, in the records of some New Testament miracles, in mediaeval paintings of demoniac exorcism, in modern accounts of camp meetings, spiritualistic séances, and religious revivals, of disease-mimicry in schoolgirls, and shell-shock amid twentieth century warfare. Beneath surface diversities the essence of the phenomena involved had not been modified. Further, where old beliefs lingered in the public mind, where superstition and mysticism were rife, there still was to be found the favourable milieu for hysterical exhibitions of antiquated form even in this epoch of scientific enlightenment. Human culture might make progress, but a Messina earthquake or a world war would lay bare hidden reactions. Old as were leprosy, rabies, and malaria, epilepsy and hysteria were older still, perhaps as old as human nature itself.

Proceeding to discuss the motor system in hysteria, Dr. Wilson referred to the occurrence in hysterical palsies of the phenomenon known as "defective inhibition of the antagonists." For example, when a patient was asked to extend the elbow, the first muscle observed to contract was the supinator longus, one of the antagonists to the movement of extension. This was the most common motor sign of the affection. Another no less interesting motor sign consisted in the shunting of the desired innervation to other groups of muscles not confined to the actual antagonists. For example, on the patient being requested to grasp the examiner's fingers tightly, she would give the impression of putting forth great effort, but the grasp would remain feeble, though shoulder muscles and others remote from the long flexors were found in strong contraction. Both these signs indicated impairment of cortical function, coupled with defective inhibition. With regard to positive movements, hysterical tremors presented no separate or contrasting features when set alongside those of the so-called "organic" type. In hysterical as in organic states, tremor was an escape phenomenon of an infra-cortical level. So far as the multiplex syndromes under the category of the hysterical fit were concerned, their range from fugues at the one extreme to immobility and lifelessness at the other covered so wide a somatic field as perhaps to render attempts at synthesis precarious. Reduced, however, to their lowest terms, one and all were indicative of release of function from conscious control. Differences between hysterical and epileptic fits were matters of degree, and not of kind, and if more profound in the average major epileptic seizure, this might be more serviceable in clinical diagnosis, but not in nosological differentiation. Turning to the sensory system, Dr. Wilson said that, before assuming that hysteria was a "disease of the mind"—a disorder on the plane of mental images—it was well to recall that the physiological arrangement of the mechanisms underlying conduction of sensory impulses varied at successive neural stages. Peripheral loss of sensibility could be distinguished from spinal loss, spinal from thalamic, and thalamic from cortical. He instanced various facts which made it rash, in his opinion, to presume a psychogenic basis for sensory disorders because of peculiarities in their segmental type when there was

presumptive evidence of physiological arrangements in the cortex to explain their occurrence. He discussed the not infrequent concomitance of hysterical disturbance of sensation with absence of bleeding when the cutaneous zone affected was pricked with a pin. An alleged stigma of hysteria turned out to occur also from "organic" lesions of the medulla, and lost any specificity it was thought to possess. Moreover, the inference could be justifiably drawn, he submitted, that bulbar centres and mechanisms were involved in certain cases of hysteria, and that these in part belonged to the neuro-sympathetic system. Finally, he pointed out, with regard to the reflex system, that if diminution of the abdominal reflex was depended on as an early sign in frontal tumours, disseminated sclerosis, and pyramidal conditions generally, the same phenomenon in cases of hysteria might well bear the same meaning or import.

It was something, surely, to be able to show that differentiating criteria as between organic and hysterical conditions had lost much of their specificity, that symptoms thought exclusively hysterical reappeared under circumstances never assigned to the interference of the psyche, and that many of the somatic manifestations of that "neurosis" had their counterpart in known physiological derangements of one grade or another. He studiously avoided the word "functional" as synonymous with "hysterical." If terminology was required, the pair of opposites, "static" and "dynamic," might advantageously be employed. In hysteria the prominence of the dynamic and the comparative absence of any static elements were noted. How could we explain the rapid cure of hysterical disabilities unless on the hypothesis that function was abrogated dynamically, but not statically?

Dr. Kinnier Wilson also stated that the strictly sexual etiology favoured in some quarters appeared incapable of universal application to questions of hysterical pathogenesis. If the etiological net were cast a little wider, the hypothesis might be adopted that hysterical reactions were determined by the emotional life in the unrestricted sense. Emotional experiences and impulses, originating in whatever fashion, associated with sexuality or not, did unquestionably help to engender the development of hysterical syndromes; they might be taken as exciting if not predisposing causes. The assertion that everyone was a potential hysteric was explained to mean that everyone carried old instinctive primitive forms of reaction, more or less covered up and controlled by the acquisitions of culture. The speaker himself had seen hysterical hemiplegia in a King's prizeman at Bisley. To such a generalization, however, it was impossible to give formal consent; on the contrary, he submitted that the evidence favoured the view that the hysteric was born, and not made, and that an unstable constitutional background—a "temperament," if the word were preferred—was the soil from which hysterical growth sprang.

RESEARCH IN CLINICAL MEDICINE.

At a meeting of the Section of Medicine of the Royal Academy of Medicine in Ireland, held on October 17th, the president, Professor Henry Moore, delivered his inaugural address on research in clinical medicine.

Professor Moore said that during the last twenty years there had been a progressive increase of interest on the part of clinicians in the functional as well as in the structural aspects of disease, with the result that pathology and physiology had become enriched, and a more fundamental understanding of disease processes was being gradually obtained. The more precise and quantitative methods of the laboratory and the experimental method for the testing of hypotheses were being employed in the clinic. This made it necessary for clinical investigators to train themselves in the use and in the interpretation of the more advanced methods of the laboratory in order to utilize them in the clinic as important adjuncts for the active study of disease in its natural environment. This was one of the keynotes of organized modern clinical research, and was likely to yield progressively rich results. As a consequence of the wealth of information thus accumulated, and of the literature which resulted, modern medicine had become one of the most complicated and difficult of the sciences, while still retaining its old character as an art. A considerable proportion of the advances made in clinical medicine in recent years had resulted from the co-operative working of the clinic and laboratory as one unit. There was much to be said in favour of the whole-time investigator in receipt of a sufficient salary, and with reasonable security of tenure. He would be able to devote his whole time to his studies without the distractions of routine teaching, ordinary private practice, or consulting work; he would have leisure for thought, and the circumstances in which he worked would permit him to view his problems with a logical, critical, and scientific eye. His teaching should be confined mainly to demonstrations and lectures bearing on his own particular line of work. In order that he might not become too absorbed in his own comparatively restricted field, and lose a balanced outlook on medicine as a whole, he should attend the staff meetings of the whole unit, in order to learn as well as teach; he should keep in close touch with the medical societies, and maintain intercourse with outside teachers and practitioners. If the whole-time worker neglected such safeguards, he would become disdainful of the psychological factor in therapeutics, upon which the successful handling of patients depended so much. The pendulum had swung at present too far to the side of curative medicine; with the development of the whole-time investigator it must not be allowed to swing too far to the scientific side. The investigator must keep in mind that the cure of disease was the objective, scientific accuracy being the sign-post on the road. The part-time worker achieved less success; it was difficult to sustain interest in research while being disturbed by the calls of practice; the psychological atmosphere of investigation was so different from that of practice that the mind did not usually give of its best to either when engaged with the problems of both. The only justification for the part-time worker in organized clinical research was either want of funds to equip and pay him for his full time, or, in certain cases, the advisability of giving a man in practice the opportunity to test a promising hypothesis. Undoubtedly there were men in practice who had important ideas which they wished to elaborate; they were willing and able to sacrifice in part the rewards of practice, and were so mentally endowed as to be able to change over readily from the psychological atmosphere to that of research. Such men were not common, but those in authority should be able to recognize them and afford them the necessary opportunity of part-time clinical research. However efficiently research in clinical medicine was conducted, and however noteworthy were its results, the final tests of reliability must be made in the clinic and in the practice of medicine outside its walls. Clinical study of disease in patients would not only suggest problems and initiate attempts at their solution, but could often furnish guidance and give directional indications of great importance to the co-operative laboratory investigations, which might make all the difference between partial and complete success. Research was a paying proposition; in clinical research the return would be better treatment, improved teaching, diminished mortality rates and increased longevity, and increased satisfaction with work well done. Professor Moore then outlined the work in his own wards in recent years, which included investigations on exophthalmic goitre, acute spontaneous hypoglycaemia, pernicious anaemia, achlorhydric anaemia, auricular flutter, paroxysmal tachycardia, and hypocalcaemia.

Dr. T. G. Moorhead said that for many years he had told his students that there were two methods of approaching the position of a hospital physician or that of a clinical research worker: one was through a training in the pathological laboratory, including bacteriology and serology, the other was through the biochemical laboratory. Even if the physician was trained in laboratory methods, it would be necessary for him to have the aid of many other workers. In Dublin, the establishment of full-time units was difficult; as an alternative physicians, radiologists, pathologists, and all the members of the hospital staff should arrange to meet once a week to discuss their

cases. These meetings should be part of the routine of hospital work, and should be attended by students. He feared that the teaching of full-time medical professors was very likely to be divorced from the necessities of actual practice; full-time research workers in the hospital (provided funds were available) would be much more likely to advance knowledge than part-time workers, but they often became too interested in purely academic questions. As far as possible the problems of general practice were those that they should endeavour to solve. One variety of research which could be undertaken as well in Dublin as elsewhere was the following up of end-results, the type of work which the late Sir James Mackenzie had shown to be so important. The ultimate results following surgical proceedings had been very imperfectly observed in the past, and there was a great field there for the collection of facts. The after-history of patients in whom biochemical tests had been performed was also very scanty; many more facts must be collected before the validity of biochemical actions could be accepted.

Dr. W. BOXWELL remarked that biochemistry was no new or isolated part of medicine, but had been an absolute necessity from the beginning. Harvey, the great physician, was his own anatomist, physiologist, surgeon, and apothecary; in his day there was no such thing as organized pathology. In Ireland any effort at organized research was hampered at the beginning by lack of funds, and clinical research at present was in a rather chaotic state. The more departments there were in a hospital, and the better run they were, the more chance there was of making such research work as was possible available for the patients who were under treatment. All the special subjects were flourishing independently, but the speaker suggested that it might be possible for their teaching to be carried out in one special institution, there being a liaison officer between that institution and the hospitals. The students could be attached to the hospitals as well for medical and surgical work in them, and undertake also research work in the institution.

Professor J. M. O'CONNOR said that the foundation of medicine was physiology, which subject should be brought more into the life of medical students. Doctors were concerned with the living patient and not with the disease that the patient was suffering from, and the methods applied to living patients must of necessity be applied to sick people. Biochemistry was held at the present time in exaggerated regard, and was really only a part of physiology. The fault in medicine in many countries was the attitude of leaving physiology behind. It was not easy to see how students should be trained into the methods of research, but he suggested that the junior appointments in the hospitals should only be made on the results of scientific progress; in conferring higher positions the fact whether the candidate had done any research work or not should be taken into consideration. It was easy to carry on very good research work in very small laboratories, and he thought that young men should be compelled to do two years' clinical laboratory work before they were allowed to do hospital work.

Dr. R. J. ROWLETTE said that most of those who were engaged in clinical work realized that the basis of that work was almost entirely physiology. Workers in laboratories chose the conditions for their experimenting, and had not the same complexities to face as had workers in hospital wards, but it was essential that those who worked in hospital wards should be well trained in laboratory experimental work, so that the methods carried out in the wards would bear the scrutiny of the laboratory. In times past there had been a danger of medical study becoming too purely clinical, and something more was still required in the way of experimental work. The speaker referred to the student's need of a book on elementary logic and statistics, and mentioned mistakes sometimes made in the classification of results. Mr. W. DOOLIN agreed that every medical student ought to have an elementary training in logic, but he thought the practical training of students in the hospitals of this country was much more useful than that in France or in Germany, from the point of view of fitting them to become practitioners.

Reviews.

"CANCER OF THE LARYNX."

A BOOK on a subject that is exercising the minds of the profession supplies a definite need, and when its writers are foremost among those who have advanced our knowledge of it, a work such as *Cancer of the Larnyx*[1] is sure to receive a generous welcome. Its authors, Sir STCLAIR THOMSON and Mr. LIONEL COLLEDGE, have made the subject peculiarly their own by many years of close study, and now present the results based on personal work and experience, with admirable fullness and clearness. The former has seen intrinsic cancer of the larynx pass from being a dire disease to become one of the most amenable from a surgical standpoint, and has himself contributed in no small degree to this striking change. The latter, from his work on the more advanced stages of the affection, has earned the right to speak with authority. Despite its dual authorship—perhaps because of it, for each forms a complement to the other—the book has been put together with a thoroughness and independence of judgement that seldom fails to satisfy.

We owe mainly to Butlin and Semon the pioneer work which has revolutionized our views of malignant disease of the larynx and has been the basis of subsequent progress. It is realized that intrinsic cancer of the larynx is more common than extrinsic, and that the former is most frequent at the cord site and never appears on the posterior commissure or interarytenoid space. The authors hold that the subglottic variety is not so rare, but most difficult to recognize and often overlooked. They have no belief in a pre-cancerous condition. The great advance was recognition that cancer arising in the interior of the larynx is usually slow in growth and relatively benign, only invading glands in an advanced stage. On the other hand the extrinsic form is a dire disease. Early diagnosis is the pivot upon which much—very much—depends in cancer of the larynx. It offers every promise, almost certainty, of a lasting cure: in the extrinsic form it is the chief hope. With this few will disagree. A persistent hoarseness, especially in middle life, is a warning sign, and this cannot be too often repeated. All this is brought out with great lucidity and force.

The principles of treatment are fully laid down. In removal, laryngo-fissure is the route preferred. From being an operation with a high mortality, improvement in early diagnosis and technique has made it safe. It is the only line that affords satisfactory approach for adequate removal, and requires excision of one ala of the thyroid cartilage. It has in fact become a partial laryngectomy, giving freer access to the field and better healing. This striking advance we owe in great measure to the work of Sir StClair Thomson himself. In laryngectomy the great advance is seen in restricting it to intrinsic cases which are too far gone for laryngo-fissure. The local conditions which indicate it are well brought out and the importance of the general state of the patient emphasized, as might be expected from the wide outlook of the authors. Laryngectomy has become a great achievement, with a surgical mortality which has fallen from 50 per cent. some few years ago to 3 per cent., and to this a scrupulous attention to preliminary care and after-treatment has contributed much. Opinion is still fluid in regard to operations for extrinsic cancer involving the pharynx. Gluck and Soerensen prefer a total laryngectomy; MacKenty of New York holds all surgical procedures hopeless; while the British school, taking a middle line in keeping with its geographical position, gets a fair proportion of lasting results from pharyngotomy in suitable cases.

In this work the authors have made it their aim to afford a complete view of the present position of this important question. They have explored all aspects of it, and their verdict will carry great weight. Not only does the book give a wide conspectus of the whole field, but its judgements on the more important problems are likely

[1] *Cancer of the Larynx.* By Sir StClair Thomson, M.D., F.R.C.S., F.R.C.P., and Lionel Colledge, M.B., F.R.C.S. The Anglo-French Library of Medical and Biological Science. London: Kegan Paul, Trench, Trubner and Co., Ltd. 1930. (5¼ × 8½, pp. xxii + 244; 18 figures. 25s. net.)

to stand the test of time and of further research. It maintains the high standard of British laryngology, which the authors themselves have done much to establish. There are over a hundred admirable illustrations and some interesting portraits of the earlier pioneers.

THE PSYCHOLOGY OF INSANITY.

Although Dr. Bernard Hart's lucid and attractively written monograph on *The Psychology of Insanity*[2] was first issued in 1912, and since then has passed through several editions, the fourth only recently, no considerable alteration has been made in the text. Nor is there any reason why there should be. The work, as its author observes, is concerned with elementary and general principles which have not been materially affected by advances made in subsequent years. These advances have added stories to the building, but have not necessitated the remaking of the foundations. Furthermore, the subject has developed so luxuriantly, and the differences of thought characterizing the various schools have become so acute, that to reflect these matters in the text would demand not a new edition, but a new book.

In order that the original work might continue to serve a useful purpose, Dr. Hart has supplied it with an introduction, in which he gives the reader a sketch of the history and present position of psychopathology sufficiently detailed to enable him to appreciate the relation borne by the principles described in the text to the structure of modern psychology, and to understand the developments that have taken place in later years. This introduction will undoubtedly enhance the value of the work to students reading for one of the diplomas in psychological medicine; they will derive the greatest benefit from it if they study the text as part of their course in normal psychology, for it is one of the merits of Bernard Hart's book that it shows how similar mental mechanisms operate in both normal and abnormal individuals. The principles therein enunciated serve admirably to link up psychology with psychopathology, and to show how one is complementary to the other. We have no doubt that this work will continue to maintain its well-earned popularity, not only among medical practitioners, but among all students of social and educational problems.

PRACTICAL PAEDIATRICS.

Sick Children: Diagnosis and Treatment,[3] by Dr. Donald Paterson, is a strictly practical work on paediatrics, for the author stresses the clinical and therapeutic sides of the subject, devoting relatively little attention to the problems of etiology and pathology. The result is a concise and well-illustrated volume, in which material of the utmost importance to the student and practitioner is clearly set out and admirably indexed. Here and there, however, the material could be rearranged with advantage, for the author tends sometimes to give a more prominent position in the text to rare conditions than to the common maladies of childhood; for example, the chapter on blood diseases opens with an account of Banti's disease and proceeds then to acholuric jaundice, chlorosis, purpura, etc., without a word about the very common simple anaemias of childhood. But even where the author shows a certain lack of perspective, the information he supplies is accurate, and in accordance with the latest scientific work. The sections on infant feeding are good; they incorporate what is practically a condensation of a special monograph on this subject published some years ago jointly by Drs. Paterson and Forest Smith, and the methods advocated follow the "rule-of-thumb" system devised by Dr. Paterson.

That the book will go into future editions and be very popular is certain; the author's reputation in the field of paediatrics carries with it the assurance that anything he writes on the subject will be based on wide experience and practical knowledge.

[2] *The Psychology of Insanity.* By Bernard Hart, M.D.Lond., F.R.C.P. Lond. Fourth edition. Cambridge Manuals of Science and Literature. London: Cambridge University Press. 1930. (4¾ × 6½, pp. xxiv + 176. 3s. net.)

[3] *Sick Children: Diagnosis and Treatment. A Manual for Students and* Practitioners. By Donald Paterson, B.A., M.D., F.R.C.P. London: Cassell and Co., Ltd. 1930. (Cr. 8vo, pp. 538; 85 figures, 16 plates. 16s. net.)

TEXTBOOKS ON HISTOLOGY.

We have received copies of six new editions of works on histology: *Piersol's Normal Histology, with special reference to the Structure of the Human Body*,[4] by Dr. William H. F. Addison; *A Text-Book of Histology*,[5] by Dr. J. Lewis Bremer; *A Text-Book of Histology*,[6] by Dr. Harvey Ernest Jordan; *Aids to Histology*,[7] by Dr. Alexander Goodall; *Guide to Study of Histology and Microscopic Anatomy*,[8] by Professor Avery E. Lambert; and *A Text-Book of Histology*,[9] by Professor Alexander A. Maximow. Taking these works as a whole, the evidence of the progress of this branch of science is fully demonstrated. It is essential in works dealing with microscopy that clear diagrams and good illustrations should be provided, and in every one of these publications such is the case.

Professor Addison's work is admirably written, and the fine quality of the paper makes the coloured diagrams, especially those illustrating the human blood cells, well-nigh perfect, and therefore of great value to the student. This is the fourteenth edition, and it has been brought up to date by the inclusion of several new figures, and also by a description of the methods of study of living cells, fully discussed in an appendix.

With regard to the work of Professor Lewis Bremer, a fourth edition shows considerable alterations from the previous one. The author has thought it advisable to dispense with the greater part of the pages on the nervous system and on microscopic technique, while, owing to the recent developments in medicine, the chapters on the liver, development of the heart, etc., have been largely rewritten. Altogether it can be said that this work is a worthy product of Harvard University.

Professor Harvey Ernest Jordan is to be congratulated on his latest *Text-Book of Histology*, now in its sixth edition. The subject-matter shows evidence of thorough revision, and in particular the chapters on the blood and the endocrine tissues have been rewritten. The illustrations are very carefully prepared, and serve their purpose as demonstrating the intricacies of the various structures under discussion, yet they do not suffer from being too highly technical, which often defeats the end in view when writing for students.

In his *Guide to Study of Histology*, Professor Lambert's aim has evidently been to produce as short yet as complete a work as possible on the subject of histology, and the result must be pronounced a success. It is concisely written, clear, and comprehensive, and well suited to meet the needs of medical students.

Professor Maximow unfortunately died whilst preparing his *Text-Book of Histology*, and the work was completed by Dr. William Bloom, who makes apology for any errors and discrepancies which may have entered into the manuscript; but there is no need for this, as the book is one which can be recommended with confidence as a general work of reference for the more advanced student of this branch of study.

While Dr. Goodall's little book does not bear comparison with the works from the United States mentioned above, it will certainly serve a useful purpose in helping the student who is in need of final and rapid review of histology before sitting for his examination. As a handy work of reference this is undoubtedly most valuable, but it is not, and does not claim to be, a representative textbook on the subject.

[4] *Piersol's Normal Histology.* Fourteenth edition, edited by William H. F. Addison, M.D. London: J. B. Lippincott Company. 1930. (Med. 8vo, pp. viii + 479; 432 figures. 25s. net.)

[5] *A Text-Book of Histology.* By J. Lewis Bremer, M.D. Fourth edition of "Lewis and Stohr." Philadelphia: P. Blakiston's Son and Co., inc. 1930. (Med. 8vo, pp. xi + 568; 486 figures. 6 dollars.)

[6] *A Text-Book of Histology.* By Harvey Ernest Jordan, Ph.D. Sixth edition. New York and London: D. Appleton and Co. 1930. (6 × 8½, pp. 857; 594 figures. 25s. net.)

[7] *Aids to Histology.* By Alexander Goodall, M.D., F.R.C.P.Ed. Third edition. Students' Aids Series. London: Baillière, Tindall and Cox. 1930. (Fcap. 8vo, pp. viii + 147; 20 figures. 3s. 6d. net.)

[8] *Guide to Study of Histology and Microscopic Anatomy.* By Avery E. Lambert, Ph.D. Philadelphia: P. Blakiston's Son and Co., inc. 1930. (Med. 8vo, pp. ix + 262; 152 figures. 3 dollars net.)

[9] *A Text-Book of Histology.* By Alexander A. Maximow. Compiled and edited by William Bloom. Philadelphia and London: W. B. Saunders Company. 1930. (6½ × 10¼, pp. xiii + 833; 604 figures. 40s. net.)

A MEDICAL MISSIONARY.

The book entitled *Dr. D. Duncan Main of Hangchow*[10] is a record of the life and work of a leading stalwart in the medical missionary world. Scotland has contributed a remarkable proportion of men whose names have become famous, each of them endowed with native ability, an untiring persistence to accomplish great things, and a winning personality. Such men were Livingstone, Stewart of Lovedale, Laws of Livingstonia, to mention but a few, and to this roll of honour must be added the name of Duncan Main of Hangchow. In 1881, at the age of 25, Dr. Main, accompanied by his young wife, sailed for China, and was sent on arrival in Shanghai, by the Mid-China Mission, to Hangchow, the capital of Chekiang Province. The first chapter contains a description of Hangchow, which for past ages has been so renowned for its beauty that it is known to the Chinese as "Heaven below"; and in the second chapter the religions of China are described. The rest of the book deals with the life-story of its subject.

Dr. Main first began his work by opening a dispensary. He "worked, begged, and prayed for a larger hospital," and two years later was able to lay the foundation stone of it. Its Chinese title was the "Hospital of Universal Benevolence." He was its architect, general overseer, lecturer, physician, and surgeon, and from it sprang in course of time the various departments which made the name of Main of Hangchow so celebrated among Chinese and foreigners alike. As the story unfolds it tells of how an opium refuge, an isolation hospital, a leper hospital and a maternity hospital, a home of rest for pastors and workers, all came to be opened, and we are given instances of the work amongst sick, blind, deaf, and lame people—in fact, all the "under-dogs" who required a helping hand. Throughout it all this devoted couple kept the spiritual part of their duties ever in the forefront. There are many little delightful pen-portraits of the Chinese men and women among whom they lived and laboured. For those who may feel the need of encouragement (and life is only worth living for the courage we bring into it) there is a feast in reading about all that "Dr. Apricot" accomplished. We gather that from the time of his arrival at Hangchow, when he had found one small house with sixteen beds for opium addicts, till the time of his departure forty-six years later, Dr. Main had, by his own initiative, established twenty-one departments and hospitals—surely a remarkable achievement.

The volume is well illustrated, and has been compressed to the handy size of 244 pages. It will make the reader wish to have a further insight into the life and times of this cheery doctor and his able wife. What though the Chinese Republic is passing through troublous times, and much of the work has been ruined by misguided political malcontents? There is here the record of nearly fifty years' wonderful usefulness, which has deeply imprinted itself in the hearts of too many Chinese to be permanently effaced.

NOTES ON BOOKS.

Dr. R. A. Houstoun's well-known *Treatise on Light*,[11] first published in 1915, has now reached its sixth edition. This book is rather more advanced than the ordinary medical student requires, but to those proceeding further with the study of physical optics it can be strongly recommended. The latest edition shows evidence of thorough revision, and includes more than twenty new diagrams and a new index.

There is appearing, under the able editorship of Lieut.-Colonel J. Stevenson, I.M.S. (ret.), a series of monographs on *The Fauna of British India, including Ceylon and Burma*,[12] and a number of these are devoted to parasites. The Cestoda, for example, are described and catalogued by Dr. T. Southwell of the Liverpool School of Tropical Medicine, and the first volume on this group has now been published. This volume contains a general introduction to the Cestoda of some forty pages and the first part of the systematic account. The introduction contains a general account of the tapeworms, their classification, morphology, diagnoses, and technique, and it should be invaluable to the student of helminthology. The major part of the book, however, is given over to a systematic description of the species found in India, and includes the Cestodaria, and five of the six superfamilies of true cestodes recognized by the author, the sixth (the Taenioidea) being left for the second volume. Most of the species dealt with are of direct interest to the zoologist rather than to the medical scientist; apart from *Dibothriocephalus* (which the author retains instead of *Diphyllobothrium*) none of the genera occur in man. But in parasitology the comparative method has been one of the most useful in understanding the forms which infect human beings, and for that reason, if for no other, the volume is a welcome addition to the library shelves of the human helminthologist as well as to the general zoologist.

Mr. W. McAdam Eccles, consulting surgeon to St. Bartholomew's Hospital, delivered a series of addresses to the Biblical Forum at St. Marylebone Presbyterian Church, and the substance of these has now been published in a small book entitled *Old Fundamentals in Modern Light and Continued Natural Law in the Spiritual World*.[13] Here will be found a statement of the author's views on religion and modern science set out clearly and succinctly, in order that some of the difficulties felt by honest inquirers in the street or classroom may be met.

A bibliography of the papers read before the first six international Congresses of the History of Medicine has just been published by Dr. Marcel Fosseyeux, general secretary of the Société Française d'Histoire de la Médecine.

[10] *Dr. D. Duncan Main of Hangchow: Known in China as Dr. Apricot of Heaven Below.* By Kingston de Gruché. London and Edinburgh: Marshall, Morgan and Scott, Ltd. 1930. (Demy 8vo, pp. 244; 34 plates. 6s.)

[11] *A Treatise on Light.* By R. A. Houstoun, M.A., Ph.D., D.Sc. Sixth edition. London: Longmans, Green and Co. 1930. (Demy 8vo, pp. xi + 494; 340 diagrams, 2 coloured plates. 12s. 6d. net.)

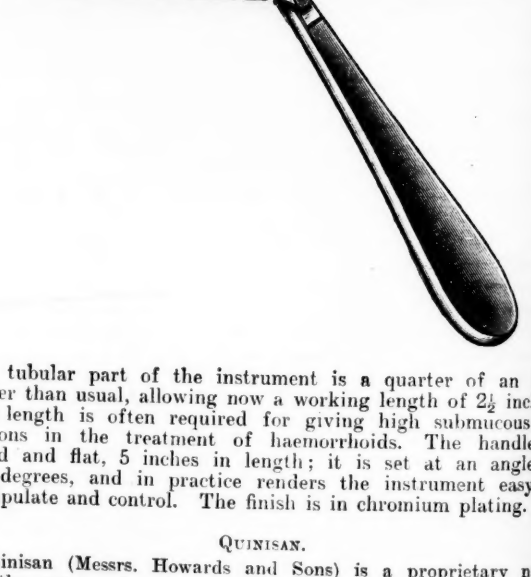
[12] *The Fauna of British India, including Ceylon and Burma.* Edited by Lieut.-Colonel J. Stephenson, C.I.E., M.B., D.Sc., I.M.S. (ret.). Vol. i: *Cestoda.* By T. Southwell, D.Sc., Ph.D., etc. London: Taylor and Francis. 1930. (Med. 8vo, pp. xxxi + 391; 221 figures. 22s. 6d. net.)

[13] *Old Fundamentals in Modern Light and Continued Natural Law in the Spiritual World.* By W. McAdam Eccles, M.S., M.B.Lond., F.R.C.S. Eng. London: A. H. Stockwell, Ltd. 1930. (Cr. 8vo, pp. 60. 2s. 6d. net.)

PREPARATIONS AND APPLIANCES.

A Modified Kelly Proctoscope.

Mr. W. B. Gabriel, M.S., F.R.C.S. (London, W.1), writes: Messrs. Allen and Hanburys Ltd. have made at my suggestion a modification of the well-known Kelly proctoscope.



The tubular part of the instrument is a quarter of an inch longer than usual, allowing now a working length of 2½ inches; this length is often required for giving high submucous injections in the treatment of haemorrhoids. The handle is broad and flat, 5 inches in length; it is set at an angle of 115 degrees, and in practice renders the instrument easy to manipulate and control. The finish is in chromium plating.

Quinisan.

Quinisan (Messrs. Howards and Sons) is a proprietary name for the compound quinine bi-salicylosalicylate. This compound separates into quinine and salicylo-salicylic acid in dilute acids, but the salicylo-salicylic acid is not hydrolysed until the drug reaches the small intestine. Thus the gastric irritation produced by many salicylic compounds is avoided. The drug is a combination of two powerful antipyretics, and it is recommended for the treatment of influenza and tonsillitis. The makers quote very favourable clinical reports. The compound is supplied in 4-grain tablets, and the dose recommended is one tablet two-hourly.

British Medical Journal.

SATURDAY, NOVEMBER 22ND, 1930.

MELANOTIC GROWTHS AND NAEVI.

THE problem of the nature of melanotic growths, which formed the subject of Professor James Ewing's address at the Annual Meeting of the British Medical Association in Winnipeg (printed at page 852 this week), and their proper position in the classification of tumours, has always been beset with difficulties. For the non-malignant form the adoption of the neutral term "mole," which carries no implications with it, provides a means of escape from certain inconsistencies, but does not indicate the place which those growths should occupy in the list of tumours. On the other hand, it has been customary to call the malignant form "melanotic sarcoma," and in many instances the behaviour of the tumour appears to justify the use of the term, since it may present the typical histological characters of a sarcoma and become disseminated throughout the body by way of the blood vessels. But many, possibly the majority, of these growths might with equal justice be classed as carcinomas, commencing as they do in a small cutaneous ulcer, extending by way of the lymphatics to the nearest lymphatic glands, and exhibiting an alveolar structure on microscopical examination. Thus it comes about that these tumours are now sometimes called sarcomas, sometimes carcinomas. Latterly, a well-intentioned attempt at greater consistency has resulted in the adoption of the term "melanoma" for the whole group, malignant and non-malignant, on the supposition that it was a neutral term signifying simply "black tumour." Unfortunately, however, it is found that there are black tumours which are not melanomas; simple papillomas of the skin, for example, may be so diffusely pigmented as to be black, without any claim to be considered melanomas. Some care is therefore necessary in applying the term; it should be restricted to tumours the essential elements of which are, wholly or in part, pigment-producing cells (whether at the time of observation they contain pigment or not), and not merely pigment-absorbing cells and pigment carriers. It is a question whether it would not have been better to retain the old name melanotic sarcoma, as a label understood by all, until the nature of melanotic growths became better understood.

Considerable advance in our knowledge has been made in recent years, as Professor Ewing was able to show, and there seems a prospect that a closer acquaintance with the nature and behaviour of pigment-producing cells will lead to an understanding of the complex structure of the so-called melanotic sarcomas. Pigment-producing cells are widely distributed in the body, being present not only in the cutaneous epithelium and corium, and the choroid coat of the eye, but in varying quantities also in the cerebral membranes, the mucous membrane of the bowel, the peritoneum, and other situations. They are met with in two forms: as clear, round, or polyhedral cells, devoid of processes, and usually arranged in compact groups or tracts of varying size, as in the so-called naevus cells which are present in the corium of pigmented naevi and in the overlying epithelial layer; or as fusiform or branched cells, having a general resemblance to pigmented connective tissue cells and occurring mostly in isolation or forming an enclosing layer at the periphery of groups of the former variety. Professor Ewing considers that the one type is a derivative of the other, and the problem is therefore reduced to ascertaining the origin of the clear, polyhedral cells; these, as already stated, exist both in the corium and in the surface epithelium of pigmented naevi, and have formed the principal object of the recent investigations. It is generally admitted that these pigment-producing cells take part in the production of melanotic sarcoma.

The first impetus to the study of naevi came from Professor Bergmann in connexion with the neurofibrosis and multiple fibromata which occur in Recklinghausen's disease. That these conditions were intimately connected with nerve fibrils was obvious, but the exact relation of the nerves to the fibrosis was not clear, and Bergmann suggested that naevi might exhibit an early stage of the process, from which the relation might be ascertained. The subject was taken up by Soldan, and in a paper published in 1899 he showed that the tracts of naevus cells present in the corium of pigmented naevi were traversed by the terminal branches of the cutaneous nerves, forming a cellular layer of varying thickness around the latter. He further showed that groups of naevus cells penetrated the epithelial layer of the surface and the hair follicles, but he was able to trace nerve fibrils into the latter only. As the result of his investigations Soldan concluded that the naevus cells were not down-growths of epithelial cells as Unna held, nor of lymphatic origin as held by Recklinghausen, but that they were cells of the connective tissue constituent of nerves, and were the source of the fibrous increase in neurofibromatosis and molluscum. The method employed by Soldan revealed medullated nerve fibres only, and it remained for Masson to demonstrate in 1926 the presence of more elaborate nervous connexions. He succeeded in showing that the medullated nerves of the skin terminate in a plexiform structure formed of a delicate syncytium, the strands of which are swollen at intervals by nuclei, and, in places, are folded back on themselves in series, producing characteristic structures somewhat resembling certain forms of tactile corpuscles. Associated with these structures, and distributed through the plexus, and more especially forming a peripheral layer to it, are numerous round or polyhedral cells—the naevus cells. Thus Masson defines naevi as "tumours corresponding to a localized proliferation of an ensemble of elements of the nervous stratum connected with the medullated nerves, associated in a plexiform 'symplaste' and capable of becoming differentiated after the manner of the satellite cells characterizing certain tactile terminations, more especially the corpuscles of Wagner-Meissner and Merkel-Ranvier." It would seem from this description that Masson regards the naevus apparatus as a specific end-organ with pigment-forming function.

The question of the origin of the pigment-forming cells existing in the epithelium was separately

considered by Masson; it may be said briefly that he regards them as of the same nature as the naevus cells of the corium. Professor Ewing's comment on these investigations is that there is no longer any room for debate about the nervous origin of the naevus cell, which is now shown to be a derivative of specialized cells in the sensory nerve endings. At the same time he makes the important reservation that these observations do not dispose of the possible participation of epithelium in some manifestations of melanomata. It must, indeed, be within the experience of all pathologists that in some cases of melanotic sarcoma a down-growth of epithelial cells seems hardly to admit of doubt.

REST, WORK, PLAY.

The cautionary remarks on the therapeutic value of rest, work, and play made by Sir Farquhar Buzzard in an address at the Winnipeg Annual Meeting, and printed in this issue of the *Journal*, are very opportune. It is time that we of the medical profession revised in some respects the stereotyped beliefs and practices with regard to the use of rest in the treatment of diseases. Such books as Hilton's classical *Rest and Pain* did admirable service in explaining the vital importance of rest for injured parts, although even in the treatment of bony fractures rest is now earlier mingled with movement than was formerly the case. But doctors in general were so much impressed with the efficacy of rest in partial injuries of the organism, such as fractures, and in acute physical disease, that by an easy but false analogy rest came to rank almost as a therapeutic religion. Whenever there was illness, rest for a time was considered essential. How many lives have been impaired, how many careers frustrated, by the prescription of rest when no rest was necessary? We have encountered a patient who, having been prescribed rest in bed thirty years before, had remained there ever since. This, of course, is a grotesque example, recalling the old woman in *Punch* who, when asked by the vicar why she was confined to bed, explained that the doctor had called three years ago and ordered her to rest in bed till his next visit—and he had not returned. But there have been many real tragedies of the rest fetish. A schoolboy presenting some functional disorder of the heart's action is told that he must rest; a period of six months or even a year is ordered. It is not so much the loss of time, which does not matter so greatly in the young; it is the very real psychological trauma produced by the suggestion of invalidism that does the harm.

In no branch of medicine has rest to be prescribed with greater care than in the functional nervous conditions to which Sir Farquhar Buzzard devoted the second part of his address. There was a time when rest in bed was the stock remedy; people forgot that resting the body was not the same as resting the mind; they did not even perceive, what is now common knowledge, that most such conditions depend upon a restless mind and not upon an overworked or "under-engined" nervous system. Too much play was made with the term "nervous exhaustion." Weir Mitchell and other distinguished exponents of the method did not realize that their cures were obtained usually in spite of, rather than because of, their method. Now the emphasis has changed, and in the treatment of psychogenic disorders generally, as well as of the severer psychoses in mental hospitals, occupational therapy, which is the reverse of a rest therapy, is coming into its own. In this country, so far as mental hospitals are concerned, it has been most extensively developed by Henderson in Glasgow, with marked benefit in all wards, not excluding noisy ones; and in Germany the "active work therapy" of Simon has produced results that have not only surprised but convinced visitors to his hospital. It is not that rest does not have its place in therapeutics; it has a very important one in the treatment of acute mental or functional nervous conditions; but it has to be prescribed with all the care that would be given to a potent drug. There are those who, having been told to rest, conclude they must be easily tired and continue to be so for the remainder of their lives.

Fortunately the importance of work is receiving greater recognition, not only in the treatment of psychogenic conditions, but in the rehabilitation of those who are suffering or have suffered from physical disease. No one can fail to be struck by the enormous idleness of the average hospital bed patient under the usual regime. We look forward to an early time when occupation will be a therapeutic bulwark not only in mental, but in general, hospitals. Something of this sort has already been recognized in America; it is now being introduced into general hospitals here—for example, the recent enterprise in the Royal Free Hospital. It encourages, reassures, and interests those genuinely anxious to get well; and it rapidly picks out the malingerer. Work is the great solace. Nothing in the world gives more permanent satisfaction than work well done. Should we not seek, then, to let our patients have it as far as their condition will allow? While rest may be good for parts of the body, and in acute illness for the whole organism, when taken excessively by the person as a whole it is demoralizing, and doubly so at almost any stage of their illness for the vast majority of neurotic patients to whom Sir Farquhar Buzzard refers. The prescription of the appropriate type of work for a given patient becomes an art in itself. Already a literature on this subject has sprung up, and there is a journal in America devoted to occupational therapy. Whether such thoroughgoing specialization is desirable is open to argument, but there can be no doubt of the need for providing some special training in the field. There is in this country a great scarcity of persons qualified both by an occupational training and by temperament for this work; yet the demand for them is bound to increase, because of their immediate therapeutic utility and because of their economic value in the long run. It has been pointed out that insurance companies may some day feel it worth while to subsidize the employment of occupational teachers in hospitals.

The correlate of work is play, and here Sir Farquhar Buzzard has some wise words to say on such advice as the familiar "Take up golf." This can be devastating counsel, if given to the wrong person, or at the wrong time, and it raises problems of physiological mechanics, as well as of psychology. Thus it may be quite correct to prescribe golf to one patient with a Parkinsonian syndrome and not to another, the advice depending on the presence or absence of the paradoxical motility of Souques. But the larger issue is that some people make their play too much like work—for example, the strenuous business man who drives his car sixty miles into the country at the week-end, plays thirty-six or even more holes on Sunday, and comes back to duty far more tired than when he left it. These and many other points are involved in the apparently simple prescriptions of rest and recreation.

FRANCIS PLACE ON BIRTH CONTROL.

ROBERT LOUIS STEVENSON, in his *Apology for Idlers*, remarked: "It is a sore thing to have laboured along and scaled the arduous hilltops, and when all is done, find humanity indifferent to your achievement. Hence physicists condemn the unphysical; financiers have only a superficial toleration for those who know little of stocks; literary persons despise the unlettered; and people of all pursuits combine to disparage those who have none." It would be going too far to say that educated men do not believe that anything *can* be of serious importance until it has been printed in a book, but certainly they hold that the writing down of something confers exceptional prestige upon the writer. That naïve belief has led to the facsimile reprint of Francis Place's *Illustrations and Proofs of the Principle of Population*,[1] with an elaborate introduction and critical notes by an associate professor of economics, and a lamentation on the publisher's dust sheet that Place's work "has remained too long and too completely in unmerited obscurity." One passage in this book has secured its reprint, this: "If, above all, it were once clearly understood, that it was not disreputable for married persons to avail themselves of such precautionary means as would, without being injurious to health, or destructive of female delicacy, prevent conception, a sufficient check might at once be given to the increase of population beyond the means of subsistence. . . . The course recommended will, I am fully persuaded, at some period be pursued by the people, even if left to themselves." Had not Place said this, his book—a sensible discussion of Malthus's essay and refutation of Godwin's statistical absurdities—would never have been reprinted. The point is that Place was an enthusiastic advocate of what we now call birth control, that he influenced, directly and indirectly, others to take up the advocacy, and thus (to quote the dust cover again) "he was the first systematic expositor of what has become, perhaps, the most significant social reform movement of modern times." That in this matter literary and scientific men have been and always will be the most insignificant of flies upon a wheel, that if Place, Carlile, Knowles, Bradlaugh, and all the other literary pioneers had never been born or had never printed a line the birth rate would have been one point per thousand higher than it is now, are propositions which would have seemed plain common sense to Francis Place, but are repugnant to an educated man with a proper pride in the importance of books. So soon as the general public has outgrown or (the alternative depends upon one's ethical standard) degenerated from the belief that sexual intercourse freed of the risk of impregnation is immoral, the result is inevitable; Casanova, to go no further back, had nothing to learn about "preventives" from the neo-Malthusians. Perhaps one day a critical edition of that disreputable writer, edited by a professor of economics, will lead to the raising of the American ban upon his works on the ground that he, too, was in a way a prophet of the "most significant social reform movement of modern times." Actually, Place's book contributes nothing whatever to the discussion of birth control. It is a competent statistical discussion of the elements of the population question within the limits of Place's knowledge. He was not, and at the time of writing could not be, sufficiently skilled in medical and vital statistics to discuss adequately the course of population changes at the beginning of the nineteenth century or earlier. In the last century much has been learned, and the writings of the late Dr. Brownlee, Miss Buer, Mr. Griffith, and others have thrown a good deal of light upon the subject. Place, for instance, put more reliance on the work of the younger Heberden than it deserved. However, literary piety will be responsible for many less interesting reprints.

[1] *Illustrations and Proofs of the Principle of Population.* By Francis Place. London: G. Allen and Unwin, Ltd. 1930. 12s. 6d. net.

CHANGING CONCEPTIONS OF RENAL TUBERCULOSIS.

ALTERATIONS in our views of the mode of origin of renal tuberculosis, and how these changes modify in some way our ideas of prognosis, are discussed by H. C. Bumpus, jun., in a recent report of the staff meetings of the Mayo Clinic.[1] Although the paper is to appear *in extenso* at some future time, the points emphasized in the extract are clear enough, and are of real practical importance. The question whether bacilli, either of the coliform group (as used in many experiments) or the bacillus of tuberculosis, can pass through the kidneys into the urine without damaging in any way the renal tissues, has been investigated many times in the last quarter of a century, and quite recently by Miss Lepper in England. The established conclusion now is, as Bumpus agrees, that the passage of bacilli through the kidneys is always associated with recognizable renal damage, even though it be so slight as nearly to elude even the microscope. Transferring this established point to the problems of renal tuberculosis, Bumpus lays stress on the following points. The primary infection is generally somewhere in the respiratory tract, often in a hilar lymphatic gland. From the primary site the tubercle bacilli escape by the thoracic duct into the blood stream, so that both kidneys almost certainly receive the infecting organisms together. What then ensues? In clinical experience one kidney alone is commonly involved by extensive tuberculosis, and the remedy for this is, as always, nephrectomy. What has happened to the other kidney, and what is the prognosis of the case if, after removal of one kidney, tubercle bacilli still continue to be passed in the urine? The answer would seem to be given by Medlar's observations, both on cases of human tuberculosis and on experimental animals inoculated with tubercle bacilli. He has shown that careful histological examination of many thousands of serial sections may be necessary to show that both kidneys are commonly involved, but most of the lesions are small, scarred, and healed. There is thus proof that in the human kidneys the majority of early foci of tuberculosis heal, and this not only allows for the occurrence of one-sided renal tuberculosis when both organs have been invaded simultaneously by the bacilli, but also shows how tubercle bacilli may still appear in the urine from the kidney which, although also infected, has not developed a progressive lesion. Further, it influences our prognosis in such cases to a considerable degree. After one-sided nephrectomy, the other kidney, if the patient's resistance to infection is improved in every possible way, may be expected to heal completely, even although tubercle bacilli are found in the urine for some considerable time. *The real clinical criterion of active and progressive renal tuberculosis is the presence of pus or red blood cells in the urine along with the tubercle bacilli,* and not the presence of the bacilli alone. This is the essential practical point, even if it is not a new one, to those experienced in the treatment of the disease.

[1] *Proceedings of Staff Meetings of the Mayo Clinic*, 1930, vol. v, No. 37.

CENTRAL COUNCIL FOR HEALTH EDUCATION.

THIS representative body, which takes an interest in all kinds of popular health propaganda, held its third annual conference in London last week. Lord Riddell took the chair at the inaugural session, and chose as the subject of his address "Publicity in public health." In this he criticized chiefly the modern habit of caring with meticulous attention for the sick, the defective, and the unfit, and leaving the healthy, on whom the work of the world depended, to care for themselves. He pleaded for a more open and more general discussion upon such topics as the sterilization of the defective. In the discussion that followed some speakers complained that myopes were included among the class of mentally defective, and even

suffered the indignity of being taken to school in an ambulance. It would be a pity if discussion of such topics as Lord Riddell mentioned were to be too much encouraged among popular audiences. The best kind of health education deals, not so much with profound scientific controversies, on which at present there can be nothing approaching unanimity, even among the experts, but with simpler but not less vital issues. Several speakers deplored the difficulty they found in persuading editors to accept health articles for publication. On this point Lord Riddell adjured members of the conference to get their teaching into the press rather by making challenging statements of crude fact than by trying to insinuate the lessons of health in syrupy articles. Dr. John Hall, organizer of the Merseyside Boroughs Education Committee, read a remarkable paper on the "Technique of popular health talks." It was perhaps a pity that he compressed into this enough matter for the forty-two separate lectures which he is in the habit of giving to children and others. The conference was a little perplexed. Queer geometrical arcs, and even stranger combinations of letters, formed themselves under Dr. Hall's legerdemain into thrilling messages and a kind of health metaphysics, which showed that the speaker was a man of unusual mind. At the afternoon session Professor H. R. Kenwood described generally the means and methods of the central council. Mr. G. H. Barker, a member of the executive council of the National Union of Teachers, spoke on health teaching in the schools. In his condemnation of many of the existing school buildings many members thought Mr. Barker went too far, but he explained that his speech was intended to challenge complacency, and certainly he succeeded in arousing numerous apologists for present-day educational arrangements, and in eliciting some reactionary views. The conference listened with great attention to Professor A. Adam, the general secretary of the German Central Bureau for Health Propaganda. As might be expected, this is a very complete organization. Teaching is given by the school masters, and health weeks are organized generally throughout Germany. One of the most interesting papers was that of Miss Norah March, secretary to the Health and Cleanliness Council, who has given much thought to the psychology of health publicity which is akin to advertising. She advised the preparation of simple health articles, cunningly disguised under attractive non-scientific titles; in this way she had no difficulty in securing their acceptance. The members were interested also in the question of the colour in which health posters should be printed; apparently red and magenta are antipathetic shades which arouse hostile instincts and had better be avoided. Mr. T. Crewe, publicity organizer of the Central Council, also read a paper on the production and application of propaganda. Between the sessions some excellent demonstrations were given of newer health films, including one with talking characters.

THE CHURCH AND MEDICINE.

One of the resolutions of the recent Lambeth Conference called for co-operation between the clergy and the members of the medical profession. This was put forward as an urgent need, because the spiritual and the physical treatment of the sick were complementary and equally necessary for true well-being. It was not quite clear what measures were recommended for bringing this co-operation about, nor in what directions it could usefully take shape beyond the general friendliness and respect as between the parson and the doctor which exists already. It has remained for the Convocation of the Province of York to carry the matter a step further. In the Lower House last week Bishop Frodsham, vicar of Halifax, moved to ask the President (Dr. Temple, Archbishop of York) to convene conferences in the spirit of the Lambeth resolution. His idea was that conferences should be held in Leeds, Newcastle-upon-Tyne, Liverpool, Manchester, and Sheffield, the five university cities in the northern province which have medical schools, with a view to an approach to a closer co-operation with medical men on the subject of health and spirit. There were signs, said Bishop Frodsham, that the connexion between the spirit and the body in the realm of healing was being forgotten. He appeared to feel that the true relation was being obscured by forces from two opposite sides: on the one hand a materialistic philosophy, and on the other such a principle as Christian Science, which maintained that health and disease were entirely of the mind. He thought that conferences between clergy and doctors might result in a better mutual understanding of the work of both. His resolution was seconded by Canon Brook, vicar of Doncaster, and carried. The Archbishop of York, to whom the resolution was committed for further action, has on many occasions spoken on this subject. One of his most notable deliverances was the sermon which he preached at Manchester in connexion with the Annual Meeting of the British Medical Association in 1929.[1] He then stated that physical healing and the healing of the soul, although best carried out by separate hands, were not really different ministries. They were one, he said, in the purpose of God for His world. It is not a vague merging of these two ministries that will make for human good, but rather a clearer apprehension of the possibilities and territory of each.

PUBLIC HEALTH CONGRESS.

More than a thousand delegates, representing local authorities, voluntary societies, and hospitals, have been attending this week a Public Health Congress and Exhibition, held under semi-official auspices at the Royal Agricultural Hall, London. The Minister of Health, who performed the opening ceremony, remarked on the vast organization which lay behind the fundamental health services of the country and prophesied for the congress that it would be a powerful influence in increasing the interest in the various aspects of the health problem. At the first session the address was delivered by Sir Arthur Newsholme, on "Medicine and the State." He criticized severely certain aspects of the insurance medical service, and his criticisms were immediately answered by Dr. Brackenbury, Chairman of Council of the British Medical Association. There was a lively, though good-humoured, interchange of contrasting opinion, but we have not space in this issue for an extended report. In addition to the sessions of the congress proper, a number of public health and sanitary associations held meetings at the hall. The first of these was the British Hospitals Association, which called a discussion on hospital contributory schemes. Sir Harold Pink, the chairman of the association council, urged the need for examining the various schemes which were in being in various parts of the country, and bringing them into line. One point of policy which it was very necessary to determine was whether public assistance hospitals should be included. Some schemes, he said, did not provide for anything of the kind, supporting only the voluntary hospitals in their districts, while others, like the scheme on Merseyside, included appropriations to municipal hospitals also. Sir Harold Pink insisted that contributory schemes ought to confine their appeals strictly to their own areas. Two or three schemes in London had "poached" in the provinces, thereby causing some difficulty to the British Hospitals Association. In the general discussion the delegates from various hospital centres related their experiences, and Sir Robert Bolam expressed the point of view of the British Medical Association. A questionary has been prepared, and is to be sent by the British Hospitals Association to

[1] *British Medical Journal*, July 27th, 1929, p. 154.

all voluntary hospitals. It inquires what classes of the community should be asked to support the hospitals by contributory methods; upon what the amount of contribution in the area should be based; whether—a point which led to some discussion—contributory schemes should be organized by an individual hospital or by an independent body; and, finally, how funds raised by contributory methods should be allocated. Other discussions at the conference, including one on the sterilization of the unfit, must await notice in our next issue.

SOCIETY OF APOTHECARIES.

At the yeomanry dinner of the Society of Apothecaries of London on November 18th, the honorary freedom of this ancient city guild was conferred on Mr. Arthur Greenwood, Minister of Health, and its gold medal was presented to Professor Fourneau. The Master, Lieut.-Colonel C. T. Samman, proposing the toast "His Majesty's Ministers," said that if the work of the Ministry of Health was to achieve its beneficent purpose, the Minister must receive the cordial support of general practitioners who had access to the homes of the people, and so could exercise a most valuable influence on the promotion of health in the country. In his reply, Mr. Greenwood expressed high appreciation at being admitted to membership, and his warm interest in all that concerned the medical profession. Personal human character, he maintained, was the one thing that mattered in such times of stress if the difficulties were to be overcome. Of all the assets of this country and Empire the health services were undoubtedly pre-eminent, and he was prepared to co-operate with any who were willing to help in the work which had to be done. A great debt of gratitude was due to the medical profession, and to all those who interested themselves in the promotion of health. Professor H. E. Armstrong, who presented Professor Ernest Fourneau of the Pasteur Institute, Paris, to the Master to receive the society's gold medal, alluded to the valuable services rendered to science and therapeutics by one of the most distinguished of living chemists and pharmaceutists. The fame of the Pasteur Institute had been much enhanced during recent years, largely owing to the devoted work of Professor Fourneau, whom Professor Armstrong compared to Ehrlich as a chemist inspired with imagination. Fourneau had worked in Ehrlich's school, and he had demonstrated the possession of a still higher degree of practical imagination. He had, in fact, conducted a most remarkable series of detective investigations, disentangling the elements of complicated problems by his self-sacrificing work and immense breadth of outlook. Fourneau was at once a chemist, a therapeutist, and an artist, and Professor Armstrong gently hinted that it could hardly be claimed that progress in medicine was keeping pace with the discoveries made in chemistry. Professor Fourneau replied in a speech of gratitude for the recognition of a scientific worker in a country other than his own. He thought that such an honour should have been paid to France rather than to himself, but the keen personal pleasure he was experiencing would be a lifelong memory. M. de Truelle, First Secretary of the French Embassy, apologized for the absence of the French Ambassador, who had been obliged to travel to Paris. He said that the honour of this award was most deeply appreciated by the French Government. The toast of "The Guests" was proposed by Colonel E. C. Freeman, senior Warden of the society, and replies were made by Mr. Justice McCardie, the Dean of St. Paul's, and Sir William J. Pope. Sir Henry McCardie welcomed the fact that art, literature, and science recognized no barrier of nationality. Consideration of those who had been associated with him in the privilege of responding for the guests prompted him to the conclusion that in one respect at any rate religion and science had at last been reconciled. He referred to the valuable scientific work achieved by the society during its long and honourable existence, and to its unfailing hospitality. Dean Inge added that of all the great City companies this society dwelt closest to St. Paul's Cathedral. With all its scientific ability it was at any rate unable to analyse the power of faith. Sir William Pope, after glancing wittily at certain failures since the war—such as the inability of many persons to escape from the enticements of quackery—praised the old City Corporations, of which the Society of Apothecaries was such a distinguished member, for the part they played in cementing together the British Empire. Other notable guests present were: Sir Humphry Rolleston, Sir John Rose Bradford, Sir Donald MacAlister, Sir Arthur Robinson, Mr. C. H. Fagge, vice-president of the Royal College of Surgeons, Dr. T. Watts Eden, President of the Royal Society of Medicine; Mr. J. B. Aspinal, the City Remembrancer; and the Masters of the Salters', Skinners', and Grocers' Companies.

THE LOCKYER COLLECTION.

The obstetric and gynaecological section of the museum of the Charing Cross Hospital Medical School contains nearly 1,200 specimens, almost the whole of which were prepared in Harley Street by Dr. Cuthbert Lockyer, and presented by him to the medical school with the request that a catalogue should be printed. The editing and publication of the latter were undertaken by Dr. Lockyer himself, and the work is now issued under the title of the *Catalogue of the Lockyer Collection*.[1] The collection also includes a cabinet of microscopic slides, taken, not only from the specimens in the museum, but also in illustration of conditions not there represented. The catalogue is stated to contain the description of no fewer than 1,828 microscopical sections. Dr. Lockyer has, further, provided a fund, the interest on which is to be devoted to the maintenance of the collection in a perfect condition. An appreciation of Dr. Lockyer's zeal is contributed, as a foreword to the catalogue, by Dr. William Hunter, who compares the collection to the great Hunterian collection of the Royal College of Surgeons.

THE BUCKSTON BROWNE DINNER.

The third Buckston Browne annual dinner of Fellows and Members of the Royal College of Surgeons of England was held, on November 13th, at the College in Lincoln's Inn Fields. The President, Lord Moynihan, was in the chair, and had beside him on his right hand Viscount Chelmsford, chairman of the Post-Graduate Medical Education Committee, and on his left hand Mr. F. C. Goodenough, chairman of Barclays Bank. The company numbered in all ninety-four, the great majority of the guests being Fellows or Members of the College. Formal speeches were not made, but the President welcomed the guests, whose health was drunk by the members of the Council, and Lord Chelmsford responded. The company toasted the donor of the banquet to the accompaniment of musical honours, and Mr. Buckston Browne, in replying, described two souvenir gifts which had been presented by him to each person present. The first of these was a model of a catheter found in a surgeon's house at Pompeii, which had been made up into the form of a letter-opener, with the College coat of arms embossed thereon. The second gift was a catalogue of Hunterian and other pictures in the Museum of the College. These pictures, as Mr. Buckston Browne explained, have recently been restored and put under glass: they were on show in the Museum, and were inspected by the guests after dinner.

[1] *Catalogue of the Lockyer Collection of Obstetric and Gynaecological Specimens.* By Cuthbert H. J. Lockyer, M.D., F.R.C.P., F.R.C.S. London: J. Bale, Sons and Danielsson, Ltd. 1930.

INDICATIONS FOR TREATMENT IN PULMONARY TUBERCULOSIS.

Dr. BURRELL'S MITCHELL LECTURE.

The Mitchell Lecture was delivered before the Royal College of Physicians of London by Dr. L. S. T. Burrell on November 13th, his subject being "Indications for treatment in pulmonary tuberculosis." The following is an abstract of the lecture.

It is usually a simple matter to decide whether a patient has been infected with tuberculosis, but it is often extremely difficult to decide whether or not the lesion is active. The problem commonly comes before the physician in one of two ways: either he is asked whether such symptoms as lassitude, wasting, cough in a patient previously healthy are due to active tuberculosis, or whether in a patient who admittedly has had pulmonary tuberculosis the disease is active or arrested.

There is a wide difference of opinion on the subjects of infectivity and immunity. Tuberculin has brought out the fact that a large proportion of human beings are infected with tuberculosis; yet only a few develop clinical tuberculosis. To submit a person to a long course of unnecessary treatment may do untold harm by leading him to study his health too much and to develop fads; it may be much worse for a child if taken away from school and companions of like age. On the other hand, active tuberculosis is amenable to treatment in the early stages, and if neglected quickly gets out of control. Doubtful cases should be watched at frequent intervals, but only after the fullest consideration should a patient be diagnosed as tuberculous and sent away for a long course of treatment. It must be remembered that if tuberculosis is lurking in the body a prolonged holiday will not necessarily prevent the development of the clinical disease, and the patient would be better following his usual occupation under medical supervision.

If we believe that a small infection or series of infections protect the individual effectively, then the correct procedure is to treat those who fail to react to tuberculin by exposure to infection or by inoculation. The opposite view is that prevention should aim at the abolition or dilution of all sources of infection. According to the first view it is those who fail to react to tuberculin who are in danger; according to the second view the reactors are not effectively protected, and are in danger from activation of their own lesions and from reinfection. If sufficient living tubercle bacilli are injected into an animal which has not previously been infected there is no immediate reaction, but later it dies of generalized tuberculosis. If tubercle bacilli are injected into an animal which has previously been affected the immediate reaction may be fatal, but if it survives recovery may take place without any actual disease developing; or if the disease occurs it progresses slowly and is associated with attempts at healing.

There is definite evidence, then, that resistance develops from infection, in the sense that the addict is resistant to morphine, but this is different from resistance such as is produced by vaccination against small-pox. In the usual type of tuberculosis seen in infancy the child resists the disease and fixes it in the glands. Children are particularly free from pulmonary tuberculosis until they reach the age of puberty, but in girls of 16 to 20 years of age the mortality from pulmonary tuberculosis is greater than that from tuberculosis from all causes in the infant. To explain this by assuming that resistance to tuberculosis is lowered by the strain of puberty seems to be unconvincing. Nor is there any falling off in the number of reactors to tuberculin as puberty and the great increase in the incidence of tuberculosis occur. No recognized method of protection against tuberculosis has been evolved either by tuberculin or emulsion of living bacilli. The reported success of experiments with B.C.G. still awaits confirmation.

The body develops defensive powers against any poison gradually introduced. One would expect the chronic consumptive to have considerable resistance, and, in fact, he has. If he has no resistance he dies rapidly before he has had time to become a chronic consumptive. True immunity, as it occurs after small-pox, is a different thing from the resistance which develops from habit in such cases as alcohol or tuberculosis. There is no real protection, and death from tuberculosis occurs in the majority of cases.

For these reasons failure to react to tuberculin is not an indication for treatment. Any attempt to protect by tuberculin or tubercle bacilli seems to be wrong. The policy that appeals to us most is to prevent infection or to dilute it as far as possible. Where this has been done by sanitation, cleanliness, and correction of overcrowding, tuberculosis has decreased. There is no evidence that any success has followed attempts to diminish the incidence of the disease by producing immunity, and in some cases, where attenuated tubercle bacilli have been injected, fatal tuberculosis supervened.

Indications for Treatment in Suspected Early Cases.

If the patient reacts to tuberculin he has been infected, and the problem is then to decide whether the symptoms are the result of a tuberculous lesion or due to some other cause. The absence of cough may be taken as evidence against the diagnosis of pulmonary tuberculosis. Paroxysmal morning cough accompanied by vomiting is not uncommon in the later stages of the disease, but is more frequent in alcoholics with bronchitis. Cough developing suddenly and lasting more than a month is suggestive, and of 611 patients admitted to Brompton Hospital with pulmonary tuberculosis it was the first symptom in 44.8 per cent. Sputum is often absent in the early stages, and a negative sputum test taken early is of little value; but when it has become purulent failure to find tubercle bacilli is strong evidence against the disease being active tuberculosis. In only 9 out of 188 cases reported by Kingston Fowler from Midhurst Sanatorium were tubercle bacilli not found at the first or second examination. In early active disease there is usually some rise of temperature in the evening. It is increased by exercise, so that when investigating a case the temperature should be taken immediately after exercise, and subsequently at intervals of fifteen minutes, in order to note the time it takes to fall. A slight evening rise of temperature alone is not enough for a positive diagnosis. Night sweats are common in the early stages, but usually disappear when the patient is put to bed. True night sweats are suggestive of the acute stage, and in chronic cases indicate an acute exacerbation. Loss of energy is present in the great majority of cases, and is almost invariably associated with some localizing symptom, such as cough. In the early stages loss of weight is often slight; loss of voice is an occasional early symptom, and if tuberculous laryngitis is found it should be assumed that the lungs are affected. Dyspnoea is not common in the early stages, but digestive troubles are occasionally the first symptoms noticed by the patient. If no other cause can be found for haemoptysis it should always be taken to indicate tuberculosis of the lungs. It is common in chronic fibroid cases, and often no treatment is required except during the actual haemorrhage. In the majority of cases, especially in those previously supposed to be healthy, haemoptysis indicates active disease. Idiopathic pleurisy is almost invariably tuberculous; if it occurs in the apparently healthy as a result of a chill or sitting in a draught it should be regarded as tuberculous in origin, and in some 40 per cent. of cases goes on to a definite form of clinical disease.

If no physical signs are found it is no evidence whatever that the patient is free from tuberculosis; on the other hand, physical signs are important, not only because they are occasionally the first indication of disease, but because they frequently enable one to judge the spread of it. The only physical sign which is really important is the presence of moist sounds over the upper part of the lung, and if these sounds are constant and increase with cough they are almost pathognomonic. Other signs, such as slight flattening at one apex, impairment of percussion note, and altered vocal fremitus, may be misleading. "Examine your patient carefully; but put not your faith in physical signs." The correct interpretation of *x*-ray findings is a matter of difficulty. Fine mottling of the lung, especially

just below and external to the mid-line of the clavicle, is strong evidence in favour of tuberculosis, and a series of *x*-ray examinations at intervals of three months will help to confirm suspicion. Dense shadows round the root of the lung should not lead to a diagnosis of tuberculosis; it does not start at the glands at the root and spread into the lung.

Special tests are of no value except in a negative sense. The tuberculin test, if negative in a doubtful case, is an indication that the patient is free from tuberculosis, but is of little value in a civilized country, where the great majority of people give a positive reaction. The opsonic index and complement fixation tests have been discarded by the majority of workers. The sedimentation test is of little value for diagnosis, although most useful as a help towards estimating the progress of the disease, and to assist in treatment. For example, after induction of an artificial pneumothorax, if toxaemia is relieved the sedimentation rate will fall. A normal vital capacity is very rare in pulmonary tuberculosis, even in the early stages, but it is lowered by many other diseases, and is of little value in diagnosis.

In the absence of definite evidence that the symptoms are due to tuberculosis the patient should be kept under observation and not treated as a consumptive. If there is definite evidence thorough treatment should be started at once, and the less the extent of disease the more urgent the need for treatment, because the patient has a good chance of complete recovery. The main function of a sanatorium is to restore to complete health those who have not yet passed into the incurable stage.

Considering the indications for treatment in the chronic fibroid type of case, there is always need for treatment in the sense that the patient should lead a quiet, regular life, avoiding excess of all kinds. Sedentary work in an office is better than a strenuous life in the open air. Fresh air is good for everyone, including the consumptive, but unnecessary exposure to cold may do harm, especially to the elderly. Apart from a restful life, treatment is only required if the disease again becomes active. During sanatorium life patients are apt to put on too much fat, and they lose some of this on their return. This is not important, but a steady loss of weight below the normal is an indication for treatment. If the patient feels over-tired after his day's work, and especially if the tiredness increases, treatment is necessary. Evening rise of temperature suggests that there is some active disease, and the return of cough and sputum indicates the necessity for treatment, at least until they have disappeared again. Haemoptysis should be treated, but it does occur repeatedly in some chronic cases without doing any apparent harm; pleurisy is not infrequent, but here again the patient is often well after the attack, and does not require prolonged treatment. The patient should be examined periodically, and an increase in the physical signs, and especially an increase in the lesion as seen by *x* rays, shows that the disease is spreading and treatment is required. Finally, it should be remembered that an idle life is not a healthy one, and many a patient will live longer if he thinks less of his own health and settles down to some suitable occupation.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

MINISTER OF HEALTH AT ANNUAL DINNER.

The annual dinner of the Society of Medical Officers of Health took place on November 13th at the Piccadilly Hotel under the presidency of Professor Harold Kerr. The principal guests were the Minister of Health (Mr. Arthur Greenwood, M.P.), the Lord Mayor of Newcastle-on-Tyne, and the President-Elect and Chairman of Council of the British Medical Association (Dr. W. G. Willoughby and Dr. H. B. Brackenbury).

Mr. Arthur Greenwood, in proposing the toast of the society, remarked that it had now existed for two generations, and might be said to have embedded itself in the public life of the country. It was so important an organization that the Ministry of Health dare not put down its left foot or its right without in the first place, either openly or privately, sounding the society's opinion. That was what he called democracy at work. It was the system of asking people who knew all about it what was the best thing to do. There might be a few people alive to-day who remembered the first medical officer of health, appointed in Liverpool more than eighty years ago. There were now something like 1,200 medical officers of health in England and Wales, whose authority, directly or indirectly, covered the entire population. They were a body of people, whether whole- or part-time, imbued with the spirit of public service; they had come into close contact with the problems of local government, and they exercised a very powerful influence on the attitude of the people towards general health. Great changes were now being made in the structure of local government. He himself had led the opposition to the Local Government Act, 1929, but he recognized how greatly necessary was a co-ordination of similar services, and that this new orientation of local government policy, this concentration of services in the hands of major authorities, ought to be used as an instrument for promoting the development of the health services of the country. It was right to have got rid of the distinction between the pauper and the non-pauper. In conclusion, Mr. Greenwood spoke of the outstanding problems of cancer and of maternal mortality and morbidity, saying that especially with regard to the latter the medical officer of health, whose work was primarily preventive, had a great task and responsibility.

Professor Harold Kerr, in response to the toast, said that the great majority of medical men and women in the service—2,000 of them—were members of the Society of Medical Officers of Health. The general practitioner, at first a cynic with regard to the advent of the medical officer, had now become a stoic. The dream of the medical officer was for every private practitioner to become a "preventionist," and to that end the society had urged that in the medical curriculum the prevention of disease should be given a place of at least as much importance as its cure. The change in view-point among general practitioners was indicated by the fact that the next president of the British Medical Association, Dr. Willoughby, was a medical officer of health, a thing unimaginable twenty years ago.

Alderman David Adams, as the Lord Mayor of the city in which Professor Kerr was medical officer of health, claimed for Newcastle-on-Tyne that it was the first city in the country to present a scheme under the Local Government Act to the Ministry of Health, and that there was no aspect of the Act which Newcastle had not carried, or was in the process of carrying, into operation. A unified scheme of medical service had been set up for that great district in the North. A former Poor Law infirmary, now a municipal hospital, had become a teaching hospital, staffed by people having the best qualifications that the corporation could secure. It had paid consultants. In order to eliminate every taint of Poor Law, a panel of general practitioners had been set up, from whom poor people might make a selection, and so the ancient, cumbrous, heartbreaking method of district medical officers had been abandoned. The health services and hospitals of Newcastle had been co-ordinated in a way which, he claimed, was a model for the rest of the country.

Sir Arthur Newsholme, in proposing the health of the guests, associated with this toast the names of Sir Eustace Hill and Dr. Willoughby, who, he said, had many characteristics in common, though one of them had worked in an industrial and agricultural county where public health work had to be built up from the foundations, and the other in a select urban district of the South, where the duties of a medical officer, though different, were not simple. Both men had distinguished themselves in their service, and both had helped to improve the relationship between the medical officer of health and the general practitioner. He thought that the public health service

owed a great deal to latter-day co-operation between the society and the British Medical Association, and it was the best possible augury that Dr. Willoughby should have been chosen for the presidency of the Association.

Sir Eustace Hill recounted some of his early experiences, first as medical officer of health for South Shields, and later for County Durham. Durham and Glamorgan were, he believed, the only counties where Labour was in power on the councils, and from the point of view of the medical officer of health he had found it not a bad thing. He related instances of understanding sympathy in his work as medical officer which he had received from a check-weighman who was at that time the chairman of his health committee.

Dr. W. G. Willoughby said that it had been a very great honour to be made president-elect of the British Medical Association, the more so because the nomination was made unanimously on a ballot vote by his Eastbourne colleagues, not one of whom, with the exception of his assistant, was in the public health service. He was not inclined to lay too much stress on the fact that it was the first time a medical officer of health had been chosen. In the first place, the society was not more than half as old as the British Medical Association, and the private and other practitioners in the latter body had long been the leaders in preventive medicine. Indeed, the part of the general practitioner in that field was often overlooked. It was largely in the treatment of children that preventive medicine could be exercised, so as to prevent troubles arising in later life; and here the private practitioner had abundant scope. He referred with gratification to the fact that the British Medical Association was ably represented on the council of the Society of Medical Officers of Health, and the society equally ably on the Association's Council. A great deal was heard about "encroachments," on which subject he had had a discussion with the general practitioners in his district. He had come to the conclusion that if he and his assistant had at times encroached on their preserves, they were constantly encroaching upon his. It was very usual for his meals to be interrupted by a telephone call from a practitioner asking him to provide some kind of help for his patient. In his district at least they had come to the conclusion that there was no such thing as encroachment, but, on the contrary, a great deal of mutual assistance. He had been himself a general practitioner before becoming a medical officer of health, and he hoped to do his share with the other members of the Council of the British Medical Association in representing the whole profession of the country.

The final event of the evening was the presentation, actually of a handsome piece of silver plate, and prospectively of a motor car, to Mr. G. S. Elliston, executive secretary of the society from 1919 to 1930. Dr. G. F. Buchan, in making the presentation, said that when Mr. Elliston took control of the society it numbered only 700 members; now it numbered 2,000, and the financial position, which was then insecure, was now very sound. This position was due, as also were the friendly relations existing with other organizations, largely to Mr. Elliston's influence.

RESEARCH IN MENTAL HOSPITALS.

As in previous years, the second volume of the annual report of the Board of Control[1] contains an account of the research work undertaken in various mental hospitals during the past year. For the most part, this research consists in the investigation of such pathological changes as appear to have etiological significance in the psychoses, but several reports deal with investigations of diseases accidentally associated with mental disorder—for example, the typhoid-dysentery group—while others are mainly concerned with the effect of treatment, especially in general paralysis.

Significance of Pathological Changes.

Studies carried out under the auspices of the Joint Board of Research for Mental Diseases of the City and University of Birmingham have been directed towards investigating the etiology of and primary changes in chronic disease, especially in the neighbourhood of the brain. Post-mortem examinations have confirmed previous findings of a large proportion of cases with macroscopic changes in the sphenoidal sinuses and antra. Sensory disturbances, whether perceived by the subject as of an ordinary character or as an hallucination, have been constantly searched for and used as an indication of the presence of septic disease processes in the head. It is claimed that the results prove that the vast majority of so-called olfactory hallucinations are true cacosmia due to nasal disease.

The oxygen capacity of patients' blood has been compared with the total haemoglobin content in order to find out whether forms of haemoglobin, useless for respiratory purposes, occur. It has been shown that anoxaemia may give rise to mental derangement, and it is thought that similar processes occurring at various ages from embryonic to adult life, and variations in the duration of the condition, are responsible for different psychiatric types of mental disorder. Work undertaken at the Cardiff Mental Hospital includes the investigation of the changes in carbohydrate metabolism occurring in psychotics. The results so far indicate the close relationship between the sustainment of hyperglycaemia incurred by the ingestion of glucose and the emotional tension of the patient.

The report from the London County Mental Hospital, West Park, includes an account of an investigation into the distribution of chlorine in the blood and urine in certain types of mental disorder. Following on the increased respiratory ventilation after waking in the morning, the normal person shows an increased output of chloride in the urine. In the psychotic patients examined there was a varying degree of retention of chlorides over the same period, associated with a varying degree of defect in respiratory regulation. In normal persons exercise appears to have no effect on the distribution of chloride between plasma and corpuscles, while in katatonic dementia praecox the same amount of exercise causes a decrease in the acid load of the corpuscle owing to a decrease in alveolar CO_2 tension.

The relation between the cause of death to the type of insanity is considered in the report from the Cheshire County Mental Hospital, Parkside, Macclesfield. A striking contrast is furnished by comparing the number of schizophrenics dying from heart disease and chronic nephritis with the number of melancholics dying from the same condition—5 out of 68 schizophrenics and 41 out of 67 melancholics. Uraemia as a cause of death in the insane has been investigated at the East Sussex County Mental Hospital. Renal failure at death occurred in 80 per cent. of cases. Post-mortem examination of the cerebro-spinal fluid revealed a very high percentage of normally high urea contents, and this has definitely been shown not to be due to decomposition changes. Further investigation is in progress with regard to the renal function during life.

At the Essex County Mental Hospital blood cholesterin has been found to be raised in dementia praecox and manic-depressive insanity, to a lesser extent in other psychoses, but not in imbecility. States of confusion, excitement, and depression are accompanied by a fall in blood cholesterol, with a return to the former high content as the acute mental state disappears. At St. Andrew's Hospital, Northampton, a study has been made of gastro-intestinal focal infection in relation to oral sepsis. By employment of anaerobic technique oral sepsis may be traced through the digestive tract.

The above-mentioned investigations are merely a selection from reports too numerous to cite in detail. They are evidence of the difficulty and obscurity of the problems awaiting solution, and of the thoroughness with which these are being examined.

[1] Sixteenth Annual Report of the Board of Control, for the Year 1929. Part II. London: H.M. Stationery Office, or through any bookseller. 1930. 6s. 6d. net.

Treatment of General Paralysis.

The treatment of general paralysis of the insane forms the principal communication from several mental hospitals. The treatment of general paralysis by induced malaria has been continued at the West Riding Mental Hospital, Wadsley, and is considered valuable. Treatment of this disease by Ducrey's bacillus has been carried out at the Norfolk County Mental Hospital. A vaccine of Ducrey's bacillus has the property of producing a high temperature, and a "fever" is obtained without the physical discomforts and risks attendant on malarial therapy. The results so far are satisfactory. At the Maudsley Hospital tryparsamide has been found to be a most valuable drug in the treatment of general paralysis. It forms a valuable substitute for fever therapy where the latter is contra-indicated, but the most effective mode of treatment is considered to be a combination of tryparsamide with fever.

ORGANIZATION OF PHYSIOTHERAPY.

MEETINGS IN LONDON.

A meeting of between thirty and forty practitioners interested in physiotherapy was held in London on November 14th, Sir Leonard Hill presiding, to consider the formation of a society of physiotherapy. Letters supporting the proposal were read from two medical members of Parliament, and from a dozen others, practitioners of physiotherapy.

The Chairman said that many of those present must have received invitations to a meeting to take place on November 17th with a view to forming a society on another basis. There seemed to be no reason why the two parties independently advocating the formation of a society should not come together as one.

Dr. R. King Brown, the honorary secretary, made a statement on the subject of the *British Journal of Actinotherapy and Physiotherapy*, of which he is joint-editor, and which has apparently given rise to objection in some quarters. The suggestion that the new society would be run by the *Journal* did not contain a word of truth; the *Journal* would be run by the society. The periodical had no connexion whatever with the trade. It was, of course, a commercial *Journal*, and it accepted advertisements as all journals did, but it received no subsidy from the trade or from any trade association.

Dr. A. Eidinow moved that a society of physiotherapy be constituted. Those interested might have joined up with the Electro-Therapeutic Section of the Royal Society of Medicine or with the British Institute of Radiology, but in neither, he thought, would they have received the consideration which their specialty deserved. The resolution was seconded by Dr. W. A. Troup, and supported by Dr. Fortescue Fox and others. The Chairman read a note from Sir Thomas Horder, who had been present in the earlier part of the meeting, wishing the movement success.

Sir Robert Stanton Woods urged that action should be held over until the meeting of November 17th, to which, he thought, all present had received invitations, and which he hoped they would attend, in view of the great desirability of going forward unitedly, and not in two camps. This view was supported by Dr. E. P. Cumberbatch. On the other hand, Dr. Murray Levick thought that if the meetings were amalgamated the present movement, which had taken the initiative, would lose its identity. Dr. W. J. O'Donovan spoke in the same sense.

Dr. Eidinow's resolution was then put and carried without dissent, and it was further agreed that the name of the society should be "The Society of Physical Medicine," and that Dr. Eidinow, Dr. O'Donovan, Dr. Murray Levick, Dr. Kerr Russell, and Dr. King Brown, with Sir Leonard Hill acting as chairman, should form a small committee to draw up a constitution. The Chairman closed the meeting by remarking that they must see what happened at the meeting called for November 17th, and find out whether it was possible to bring about union. He added that he and those associated with him were not out to form a society on their own if they could possibly get union.

A meeting to consider the question of forming a society of physiotherapy was held at the rooms of the Medical Society of London on November 17th, with Professor W. E. Dixon in the chair; between fifty and sixty were present.

The Chairman gave an account of the origin of the proposals, and said that matters had taken a somewhat different turn, owing to a letter from Lord Dawson of Penn, who earnestly advocated that those interested should endeavour to find adequate expression for themselves within the Royal Society of Medicine.

Lord Dawson made some remarks in support of this view. He agreed that those who practised physiotherapy had not at the present time an adequate organization or means of exchanging ideas, and he thought such an organization should be provided. But the great advantage of coming into an organization where they would rub shoulders with those pursuing other branches of medicine had to be remembered. Such a body as the Royal Society of Medicine gave support to each of its constituent Sections, and exercised a healthy restraint without interfering with their freedom. He begged those interested to make a strong endeavour to come within the walls of the Royal Society of Medicine. This was not the time, he said, to start new organizations. On the subject of education and the recognition and examination of technical assistants a Section of the Royal Society of Medicine would be able to make strong recommendations in suitable quarters.

Sir William Willcox expressed sympathy with Lord Dawson's point of view, but said that there was a feeling that the Royal Society of Medicine rather shelved discussion on the larger or more public aspects of a subject.

Sir Leonard Hill said that two meetings had been held for a similar purpose by another group, which had insisted that he should preside, and at the second meeting it was agreed to form a "Society of Physical Medicine." At the same time, he was all out for unity; he fully agreed that it would be a mistake to form two separate societies. As to joining up with the Royal Society of Medicine, he saw both advantages and disadvantages.

Dr. Fortescue Fox pleaded for a broad basis embracing the whole scope of physical medicine; "physiotherapy" would not do. He also recalled an occasion on which the council of the Royal Society of Medicine had declared that questions of medical education were outside its scope, although one of its Sections had felt strongly on the subject. Dr. W. J. O'Donovan urged that a separate society should first be formed, that it should be all-embracing, and should aim later on at absorption into the Royal Society of Medicine. Dr. A. Eidinow pleaded for general support for the new body which had just been constituted. Dr. King Brown described the formation of that body, remarking that many practitioners did not wish for full membership of the Royal Society of Medicine. He agreed that it would be absurd to form two societies, and invited everybody present to join the one which had been formed. Sir R. Stanton Woods outlined the history of the meetings already held, urged unity, and said that he did not propose to join the society formed last week. Dr. W. Kerr Russell said that most of those present were already members of the Royal Society of Medicine, and the proposal to form a new body was largely the result of dissatisfaction with that Society.

Dr. Stanley Melville supported the view that action should be taken through the Royal Society of Medicine, and Sir William Hale-White spoke to the same effect, but Dr. M. B. Ray criticized the policy of the Society's council, remarking that the Section of Balneology had not been allowed to take any action in the formation of a spa practitioners group. Lord Dawson said that the policy of the Royal Society of Medicine was not immutable; the sensible thing to do was to try to alter what was bad, and not weaken the work by multiplication of organizations. In reply to a question by Dr. C. B. Heald, Lord Dawson assured the meeting that a committee which it appointed would have a sympathetic reception from the Royal Society of Medicine. Dr. Hector Munro deprecated the formation of a new society, and suggested three Sections in the Royal Society of Medicine: for electrotherapeutics, for radiology, and for other branches of physical medicine.

The Chairman (Professor Dixon) said that Lord Dawson had converted him to the idea of forming a Section of the Royal Society of Medicine.

Lord Dawson then moved, and Dr. Hector Munro seconded:

> That a committee representative of the various aspects of knowledge and of opinions be constituted in order to explore a plan of forming an adequate representation of physiotherapy within the confines of the Royal Society of Medicine.

As the result of some criticism by Dr. Fox and others, the proposers agreed to add the words, "and, in the event of failure, to explore other avenues," and in this form it was carried unanimously. The chairman and Sir Leonard Hill were appointed as the nucleus of a committee, the idea being that they would invite others to join them in forming a committee to study the possibilities, and to report at a later date.

PHYSICAL FITNESS OF MOTOR DRIVERS.

THE B.M.A. AND THE REGULATIONS.

It is common knowledge that the Draft Regulations under the Road Traffic Act—known as the Motor Vehicles (Driving Licences) Regulations, 1930—which come into force on December 1st, have been the subject of detailed discussion between the Minister of Transport and representatives of interested bodies, including the British Medical Association. Certain statements have appeared in the lay press from which it might be assumed that the standards of physical fitness imposed by these Regulations on the candidates for driving licences are in accordance with the recommendations of the Association. Such an assumption would be ill founded. The special Committee appointed by the Association in July, 1929, "to investigate and report upon the problem of the medical and physical fitness of drivers of motor cars, and to suggest what tests might be recommended for adoption by local authorities," made certain recommendations as to standards of fitness and the methods of imposing such standards, which were approved by the Representative Body in July, 1930, and conveyed to the Minister in a letter, which is printed in full below.

The recommendations of the Committee were designed to ensure that so far as possible no person suffering from any disease or disability likely to make his driving a source of danger to the public should be granted a licence, while, on the other hand, no applicant, whatever his disability, should be unnecessarily precluded from driving, whether by conscientious scruples or by any defect which could be adequately compensated by artificial aid or personal care and skill. They postulated provision for medical examination as an essential part of the machinery for deciding those cases of doubtful capacity covered by the third and fourth items in the draft form of application for a licence. In the opinion of the Committee, it is inequitable in such cases to place upon the applicant the onus of a decision as to the degree of incapacity likely to entail danger, while there are obvious practical limits to the utility of a road test as a measure of some forms of disability. The omission from the Draft Regulations of any provision for medical examination leaves the onus of decision as to mental and physical fitness for driving on the candidate, who will himself have to decide what medical advice, if any, he requires to enable him to declare that he is not suffering from any disease or disability which would be likely to cause the driving by him of a motor vehicle to be a source of danger to the public. The importance of his decision in this connexion is obvious, for the disabilities which it covers must be taken to include such conditions as general paralysis of the insane, gross heart disease, and marked restriction of the field of vision.

The difference between the two schemes is clear, and the British Medical Association is in no way committed to approval of that adopted by the Minister. Its advice was, however, sought as to the best means of defining the standards acceptable to the Ministry for the purposes of the scheme actually adopted and subject to its limitations, and the fact that the scheme itself was not in accordance with its original recommendations was naturally no bar to rendering technical assistance of this kind. It should, however, be clearly understood that the collaboration of the Association in formulating the Regulations was confined to determination of their form rather than their content.

The original recommendations of the Association are set out in detail in a letter addressed by the Medical Secretary of the Association to the Ministry of Transport on February 21st, 1930, as follows:

The Association's Letter.

The Council of the British Medical Association has had under consideration the Road Traffic Bill, which is at present before the House, and I have been instructed to convey to you certain suggestions and recommendations which the Council believes will be of assistance to the Ministry in connexion with the Regulations which will have to be drawn up as soon as the bill becomes law.

The Council is, in the main, in substantial agreement with the bill itself, but would suggest an addition to Clause 22 which it trusts the Minister will see his way to propose himself during the Committee stage, or to accept as an amendment if such be moved when the particular clause is under discussion. The suggestion which the Council wishes to make is the desirability of investigating the physical and mental condition of the driver as well as the condition of the vehicle in every case in which an inquiry may be made under Clause 22 of the bill.

With regard to the Regulations the Council was faced at the outset by the fact that the information which can be required from a candidate for a licence should be such as the candidate is normally in a position to supply without having recourse to expert assistance, and such information is necessarily extremely limited. The Council is of the opinion (1) that the required declaration should be in general terms to the effect that the candidate to the best of his belief does or does not suffer from any one of a specified list of disabilities or any other condition which would be likely to render his driving a source of danger to the public; and (2) that the list of disabilities specified on the form of application should be in simple and popular language and calculated to convey to the average candidate a clear idea as to the general nature of the disabilities which should be declared, and that it should not purport to be an accurate description in scientific terms of the exact conditions which should be considered a disqualification for obtaining a licence. A declaration of this nature would seem to be covered by the terms of Clause 5 (1) of the bill.

It follows from the nature of the declaration recommended by the Council that this declaration cannot in itself afford sufficient ground for a final decision as to the qualification of a candidate to hold a driver's licence. The bill provides that, except in the case of such diseases and disabilities as may be prescribed as an absolute bar, an applicant suffering from any of the specified conditions shall be at liberty, on payment of a prescribed fee, to claim to be subjected to a test as to his fitness or ability to drive a motor vehicle of the class or description for which he desires a licence, and on passing the prescribed test shall, if he is not otherwise disqualified, receive a licence of the class for which he has shown himself to be qualified.

The Council is of the opinion that while certain conditions should undoubtedly constitute an absolute bar to the issue of a licence, their existence can in the majority of cases only be satisfactorily determined by tests, and that provision should be made where necessary for both a medical examination and a practical driving test. With the exception of total blindness and epilepsy the Council is definitely of the opinion that the average candidate cannot be expected to make a declaration in such a form as to decide the point at issue. If, therefore, certain conditions are to constitute a statutory bar to the issue of a licence, their existence in the individual case must in general be determined by reference to a competent medical opinion, and not by the bare statement of the applicant.

The reason for requiring a medical examination is obvious, since there are diseases and disabilities (notably general paralysis of the insane) which, whilst they may at any time render the applicant totally unfit to drive, would not necessarily prevent him from passing satisfactorily any practical test of driving capacity.

A practical test of driving capacity will, however, be desirable in many cases in addition to the medical examination, since care and skill in driving may be an adequate compensation for the presence of gross lesions which in themselves, and apart from the capacity for exercising such care and skill, might be taken as a disqualification.

The Council recommends, therefore, that, whilst the declaration required from the applicant should be in general terms, more precise standards should be formulated for the guidance of the licensing authorities of the medical practitioners, to

whom the authorities should refer for examination applicants or drivers who appear to be the subject of any of the specified diseases or disabilities, and also of the Courts, with whom lies the ultimate decision in the case of an applicant who appeals against the refusal or revocation of a driver's licence. Such standards will also be of use to the private practitioners who may be asked by their patients as to the advisability of driving cars.

The Council desires to emphasize its opinion that deafness in itself should not be considered as a disqualification for driving, and that neurasthenia should be excluded from the list of specified conditions because, in the case of the psychoneuroses, there is either a complete inhibition against driving at all or the patient is able to drive in safety.

The Council considers that if, and when, a system of traffic control by colour signals is put into force, the danger involved in the wide incidence of defect in colour vision should be met by the addition of adequate signals other than mere colour.

The Council is aware that numerous authorities on the Continent and in America carry out psycho-technical tests, but there is little or no evidence to show that these tests have any great practical utility. It considers that, although further research on the subject would be of great interest, any general application of psycho-technical tests in this country is neither desirable nor practicable at the present time.

To sum up, the Council of the Association recommends :

1. That, for the purpose of Clause 5 (2) (*b*) of the Road Traffic Bill, the only condition for practical purposes which should be constituted an absolute bar to the issue of a driving licence is epilepsy.

2. That the following conditions as to disease or physical disability should be prescribed in the form of declaration contemplated under Clause 5 (1) and 2 (*b*) of the Road Traffic Bill :

Very defective vision,
Mental disease,
Alcoholism, or drug addiction,
Epilepsy,
Paralysis,
Liability to attacks of disabling giddiness,
Loss of foot or hand,
Gross stiffness of joints, including the neck,
Gross heart disease;

and that the applicant should be asked to state, in as brief and simple a manner as possible, whether or not he is suffering from any of the diseases or disabilities so specified; that any applicant declaring himself to suffer from any such disease or disability should be referred to a medical examiner who should, after due examination, recommend :

(*a*) that the applicant should not be disqualified for holding a licence; or
(*b*) that the applicant should be subjected to a road test; or
(*c*) that the degree of disability is such that the grant of a licence should be refused.

3. That in reporting upon any person referred to him as above or under Clause 5 (4) of the bill the medical examiner should have regard to the following standards :

	Degree of disability which would warrant examining practitioner recommending that licence should be refused.	Degree of disability which would warrant examining practitioner recommending a road test before licence granted.
Very defective vision ...	Defects which cannot be adequately corrected by glasses, or serious defect of the field of vision	Limitation of field of vision
Alcoholism or drug addiction	—	All cases
Paralysis	—	Paralysis of any description involving loss of full use of hand or feet
Liability to attacks of disabling giddiness	Ménière's diseases, cerebellar tumour	—
Loss of foot or hand and gross stiffness of joints, including neck	—	All cases
Gross heart disease ...	Angina pectoris, severe valvular disease myocardial degeneration	—

4. That in the case of applicants for a licence in respect of a public service vehicle (Clause 72) the medical examiner's report should be on the lines of that at present in use by the Metropolitan Police Authority, as follows :

[The details were here quoted.]

5. The Council is of opinion that the desirability of investigating the physical and mental condition of the driver, as well as the condition of the vehicle, should be considered in every case in which an inquiry may be made under Clause 22 of the bill.

The suggestions contained in this letter are the result of the deliberations of a special Committee which was set up by the Council to consider the important problems involved. The constitution of this Committee was as follows :

Professor Joseph Barcroft, M.A., F.R.S., Cambridge (Physiologist), *Chairman*.
Professor Arthur H. Burgess, M.S., F.R.C.S., Manchester.
Dr. C. O. Hawthorne, D.Sc., F.R.C.P., London.
Dr. H. B. Brackenbury, London.
Mr. N. Bishop Harman, F.R.C.S., London.
Dr. F. H. Bodman, Bristol.
Dr. Charles Buttar, Guildford.
Sir E. Farquhar Buzzard, Bt., M.D., F.R.C.P., Oxford.
Dr. W. H. Davison, Birmingham (Medical Coroner).
Group Captain Martin Flack, R.A.F.M.S.
Dr. R. G. Gordon, F.R.C.P.Ed., Bath (Psychologist).
Mr. E. L. Pearce Gould, F.R.C.S., London.
Mr. Somerville Hastings, M.S., F.R.C.S., London (Aurist).
Dr. H. L. Hatch, Pinner.
Sir John Parsons, F.R.S., F.R.C.S., London (Ophthalmic Surgeon).
Dr. F. A. Roper, Exeter.
Dr. T. H. G. Shore, F.R.C.P., London.
Mr. E. B. Turner, F.R.C.S., London.
Mr. P. Jenner Verrall, F.R.C.S., London (Orthopaedic Surgeon).
Mr. N. E. Waterfield, F.R.C.S., Banbury.

In preparing its report this Committee had the assistance of the Secretary and Deputy Secretary of the Automobile Association, and their views are substantially in agreement with the Committee's findings.

Representatives of the Council would be glad to discuss any or all of the points mentioned with the Minister or his representatives at any time which is found to be convenient.

Terms of Regulation 5.

The Regulation which deals with physical fitness of drivers and provides for road tests is as follows:

5.—(i) The diseases and disabilities in the case of which the applicant for a licence shall not be entitled to claim to be subjected to a test as to his fitness or ability to drive a motor vehicle under Subsection (2) of Section 5 of the Act shall be the following: Epilepsy; liability to sudden attacks of disabling giddiness or fainting; inability to read at a distance of 25 yards in good daylight (with the aid of glasses, if worn) a series of six letters and figures in white on a black ground of the same size and arrangement as those prescribed for the identification mark of a motor car.

(ii) The fee to be paid by an applicant who claims under that subsection to be subjected to such test shall be ten shillings.

(iii) In order to pass such test the applicant for a licence shall prove to an examiner approved by the Licensing Authority his ability unaided to :

(*a*) Start the vehicle from rest, to move away in a reasonably quick time, and to maintain an accurate course.
(*b*) Turn right- and left-hand corners correctly.
(*c*) Stop the vehicle within a reasonable distance when travelling at various speeds. (In this respect he must satisfy the examiner that in an emergency he will be able to apply the brakes promptly and effectively.)
(*d*) Operate all controls with safety and without moving from the driving seat.
(*e*) Give all recognized signals to other persons using the road and to traffic controllers in a clear and unmistakable manner. (If, owing to his disability, it is impracticable or undesirable that he should give such signals by hand, the vehicle must be fitted with a device or devices which, in the opinion of the examiner, will be satisfactory for this purpose.)
(*f*) Except in the case of a motor cycle, make the vehicle proceed backwards for a reasonable distance, make a left- and right-hand turn in reverse gear, and back the vehicle into an indicated position.
(*g*) Turn the vehicle round so as to proceed in the opposite direction in a roadway thirty feet in width.
(*h*) Stop, hold, and start the vehicle on a gradient of at least 1 in 15, but not steeper than 1 in 10.

Generally, the applicant shall satisfy the examiner that he is capable of driving a motor vehicle or a motor vehicle of the particular construction or design to which the application relates without danger to other users of the road.

Declaration as to Fitness.

Section C of the first schedule to the Regulations defines the terms of declaration of physical fitness to be made by the applicant for a driving licence. It runs as follows:

"The applicant is required to furnish answers to the following questions by placing the word 'Yes' or 'No' in the space provided opposite each question.

"1. Do you suffer from epilepsy, or from sudden attacks of disabling giddiness or fainting?

"2. Are you able to read at a distance of 25 yards in good daylight (with glasses, if worn) a motor car number plate containing six letters and figures?

"3. Have you lost either hand or foot, or are you suffering from any defect in movement, control, or muscular power of either arm or leg? If so, give particulars.

"I declare that I am not suffering from any other disease or disability which would be likely to cause the driving by me of a motor vehicle to be a source of danger to the public."

[On the back of the declaration form is a note stating that if the applicant is in doubt as to the answer to be made either to Question 1 or to Question 2 he should obtain professional advice.]

Scotland.

Rector of Aberdeen University.

As briefly announced in last week's issue, Sir Arthur Keith, M.D., LL.D., was elected, on November 8th, Rector of Aberdeen University for the coming three years in succession to the late Earl of Birkenhead. Sir Arthur Keith stood as a non-political candidate against Colonel John Buchan, M.P., who was put forward by the Aberdeen University Unionist Association. Sir Arthur is a native of Aberdeenshire, and received his education at Robert Gordon's College, Aberdeen, and at Aberdeen University. It is the first occasion in its history that Aberdeen University has had at the same time a Chancellor—Lord Meston of Agra and Dunottar—and a Rector who are both alumni of the University.

Registration of Blind Persons in Scotland.

A circular was issued on November 7th by the Department of Health for Scotland dealing with the registration of blind persons, and giving directions as to arrangements for their medical certification. A copy of the central register of the blind, kept by the department, has been issued to all local authorities, containing particulars of individual blind persons already registered, including an occupational classification. A form is appended to the circular upon which local authorities are requested to furnish information regarding blind persons in their areas as on April 1st, 1931, with a view to securing uniformity throughout the country. The department suggests that every society dealing with the blind in any given area should maintain such a register on behalf of the local authority, and urges close co-operation between local authorities and local pensions committees. It points out that some inaccuracy has been caused by the acceptance of certificates by persons other than ophthalmic surgeons, and by lack of uniformity in the interpretation of the standard of blindness. The circular states that in the past year only 39.5 per cent. of cases were certified as blind by ophthalmic surgeons; 44.1 per cent. were certified by local medical practitioners, 1.6 per cent. according to other evidence, and in 14.8 per cent. no particulars of certification were furnished. A blind person is defined in the Act of 1920 as one "so blind as to be unable to perform any work for which eyesight is essential." The department considers that the most satisfactory arrangement for certification would be the establishment of regional clinics, all certification being conducted by ophthalmic surgeons. The central register of the blind at April 1st, 1930, indicated that there were 8,897 blind persons in Scotland, representing 1 blind person to every 549 of the general population. It is suggested that in areas where the incidence of blindness exceeds this ratio, re-examination by a properly qualified person should be carried out.

Training of Nurses.

In an address on nursing services under the Local Government Act, delivered on November 14th, at a meeting held in Glasgow City Chambers, Dr. A. S. M. Macgregor, medical officer of health for Glasgow, said that this Act brought under a single administrative control three large groups of hospitals, with their associated medical and nursing staffs. These were the general hospitals previously administered by the Poor Law, the hospitals for mental disease—formerly under district boards of control—and the hospitals for infectious disease, including tuberculosis, already administered by the local authorities. The Act also effected a union between staffs of health visitors required for education health services, maternity and child welfare services, tuberculosis, general sanitation, and other objects. The local authority in Glasgow would have to deal with over 1,600 nurses, including trained nurses, and those in training. There were about 3,000 beds in the voluntary hospitals, and approximately 8,500 in the hospitals administered by the corporation. The latter included over 3,000 beds in mental hospitals, 1,500 beds for infectious disease, 1,400 beds for tuberculosis, and about 2,500 classed as general hospital beds. The local authority was therefore closely concerned with the conditions of nursing service for a considerable variety of functions. In the training of nurses at present each institution acted as an independent school, and qualified its own staff for admission to the general or the fever nursing registers. Training in special hospitals, such as those for the treatment of tuberculosis, was not recognized as forming part of the curriculum for registration. Many nurses took both general and fever training certificates, involving at least six years' training. If a nurse desired a certificate in midwifery, another six months was required, and still another six months was necessary if a nurse was to become a health visitor. This curriculum was too long for an all-round comprehensive training. In the United States a nurse might obtain a wide training within periods varying from three to five years. The problem in that country was simpler, however, because training institutions for nurses were affiliated with medical schools, and the large hospital systems, in serving a variety of purposes, made a wide experience easier to obtain. The provision of a considered scheme for nursing services in this country demanded early solution, and would require consideration from three points of view—namely, the effect on the individual hospital, the avoidance of a training which might lose sight of essential principles, and the facilities and status of the various institutions providing parts of the curriculum.

England and Wales.

Halley Stewart Lectures.

CONTINUING his Halley Stewart Lectures—referred to in the *Journal* of November 15th (p. 841)—Sir George Newman dealt with the subject of "Modern collective humanism at work." The increase in expenditure, he said, from 20 millions in 1891 to 322 in 1928, indicated not only the magnitude of the growth of the social work of the State on behalf of the individual, but also made it necessary to ask if this vast outlay was proving an undue burden upon revenue and industry, and if it was yielding commensurate results. To maintain our health and life as a nation, to develop our capacity, creativeness, self-reliance, independence, and even security, was good and profitable statecraft, but to do so much for the individual that he became lazy, indifferent, dependent, and parasitic, was evil and wasteful. The lecturer then discussed in detail four aspects of the public health services of a modern State—namely, the saving of infant life, the medical services on behalf of maternity, child welfare, and national health insurance. An organized service of medicine, he said,

had manifestly given the nation immense advantages in regard to an organized and regulated medical profession; an improved medical education; a hospital and dispensary service for the poor; health reform of the factories; the defeat of pestilences; the care of maternity, child life, and the school child; a system of health insurance for 14 million persons, and an ever-expanding means of medical research and discovery. In view of the fact that the health insurance system involved intimate relations between 15,000 doctors and 14 million persons, criticism and complaint was not remarkable, since the scheme was still incomplete and had many imperfections. The vital questions were, first, whether the present scheme was better than the old contract medical practice, and secondly, whether the patient was getting better treatment than formerly. He claimed that the scheme was beyond doubt an immense improvement on previous arrangements, and the treatment provided very much superior. Moreover, progress was being made every year. It was important, however, to keep steadily in mind that the appropriate organization of medical services must never be allowed to convert the medical profession into a branch of the Civil Service.

The fourth and last lecture was entitled "Gains and losses in national health needs of the future." Sir George Newman first indicated the chief milestones in the modern advance of medicine, such as the prevention of scurvy, the beginnings of immunity, anaesthesia, causes of infective disease, antiseptic surgery, and the invention of instruments of precision in diagnosis and treatment. On the credit side the expectation of life at birth had increased by eighteen years since 1838. From 1838 to 1888 the expectation of life at birth was 40 years; it was now approximately 58. Another gain had been the elimination of pestilences, such as leprosy, plague, famine pestilence, sweating sickness, typhus, and cholera. On the whole he considered that the resistance of the community was steadily increasing, due partly to immunization, but mainly to improved nutrition. It appeared that life was more comfortable physically, and that there was less suffering owing to the applications of modern medicine. Further, life was more tolerable and happier; there was increased capacity, though not always accompanied by increased output. The great improvements in childhood, in factory betterment, and in housing had played their part. On the other hand, England had failed to control cancer, influenza, digestive disorder, rheumatism, and mental disease. The public health services were saving life at an extraordinary rate, which naturally and inevitably included saving enfeebled, impaired, and diseased lives. Moreover, the birth rate was highest in those classes of the community that were physically the least virile. The results of this change, though not excessive or in any way alarming, were fairly definite. Many young women were coming into maternity with lessened stamina; the pre-school child still remained defective; some of the school diseases still persisted; part of the excessive sickness claims were due to this impaired physique, and certain diseases were on the increase. Again, we had failed to educate the people in health; the opportunity for wise and constructive teaching of hygiene in schools was largely neglected, and quackery, food stunts, indiscriminate artificial contraception and sterilization were looked to with more regard than they deserved.

Radium in Surgery.

A meeting of the Manchester Medical Society was held on November 5th, when a paper on radium in surgery was read by Mr. H. S. Souttar, surgeon to the London Hospital. He recalled that although radium was discovered thirty years ago it was only within the last few years that it had become of general use in surgery. The beta waves were caustic in their effect, and must be eliminated by screens of platinum and silver. The gamma rays had a selective action on carcinoma, and when suitably applied were capable of destroying the cells of a carcinoma without any corresponding injury to the connective tissues. Gamma rays appeared to affect the cell at the moment of its division, destroying the chromatin, which at that moment was in a peculiarly sensitive state. The work of Regaud on the seminiferous tubules in the rat was a conclusive proof of its action. It was thus essential that a malignant tumour should be exposed for a sufficient time for every cell to have the opportunity of dividing. In the clinical use of radium one of the chief objects in view was to obtain a perfectly uniform irradiation, both of the tumour and of the whole lymphatic area associated with it. In Mr. Souttar's opinion this was best accomplished by the introduction of seeds containing minute amounts of radon and suitably screened. These seeds could be introduced in very large numbers by means of a special instrument which controlled their position with great precision. Tumours varied greatly in their sensitivity to radium. Epitheliomas of the skin and of the mucous linings of the cutaneous orifices were highly sensitive, especially if of the basocellular type. Glandular tumours such as carcinoma of the breast were not so sensitive, but could in most instances be made to respond. Sarcomas were variable, those arising from bone being highly resistant. Although it was still too early to form definite conclusions, Mr. Souttar was greatly impressed by the results so far obtained, and thought that radium would ultimately replace surgery over a very large field of malignant disease.

Birmingham Dental Hospital.

At the prize distribution of the school at the Birmingham Dental Hospital, Mr. Malcolm Knott, chairman of the surgical committee, announced that enlargement of the institution was contemplated in view of the continued increase in the number of patients. The present students were receiving an exceptionally valuable clinical education in administering anaesthetics and operating under anaesthesia. Mr. Knott maintained that dentistry had not yet become an overcrowded profession, since so many openings had come into existence for dental work, in connexion with school clinics, the fighting Forces, and large industrial concerns. Sir Frank Colyer, who presented the prizes, dwelt on the professional and clinical aspects of a dental career. He urged the students to pay attention to the scientific side of dentistry in order that advances might be made in knowledge.

Correspondence.

MENTAL TREATMENT ACT: APPROVAL OF MEDICAL PRACTITIONERS.

SIR,—In your issue of November 8th you were good enough to publish a notice issued by the Board of Control in the following terms:

> Medical practitioners who desire to be approved by the Board of Control for the purpose of making recommendations in respect of voluntary patients under 16 years of age—Section 1 (3) of the Mental Treatment Act—and temporary patients—Section 5 (3)—can obtain the necessary form of application by writing to "The Board of Control, Caxton House West, Tothill Street, London, S.W.," and marking the envelope "M.T.D." in the top left-hand corner. As the Act comes into operation on January 1st next, intending applicants should write for this form immediately. The Board cannot entertain applications for approval from medical practitioners of less than five years' standing on the *Medical Register*.

A similar notice was printed in other journals and newspapers, but up to the present a very small number of applications have been received from medical practitioners for approval under the Act. It will, of course, be appreciated that the operation of Sections 1 (3) and 5 (3) of the Mental Treatment Act as from January 1st next will be seriously handicapped unless there is a sufficient number of medical practitioners approved by the Board for the purpose of signing recommendations under those sections. In particular, a temporary patient cannot be received for treatment under Section 5 unless the recommendation has been signed by a medical man who has been approved by the Board of Control for the purpose; and if in any area there are no practitioners so approved, the medical profession may find themselves in difficulty in securing that their patients shall have the advantage of treatment under those provisions.

It is therefore a matter of urgent importance that an adequate number of medical men throughout the country should be approved, if possible, before January 1st next; and the Board would much appreciate your assistance if, by publishing this letter in the columns of the *British Medical Journal*, you could bring the matter to the notice of the medical profession.

Perhaps I might repeat, in conclusion, that medical practitioners seeking approval should write to the Board of Control, Caxton House West, Westminster, S.W.1, for an application form, and should mark the envelope "M.T.D." Applications can only be considered from practitioners of at least five years' standing on the *Medical Register*.—I am, etc.,

Board of Control, Westminster, S.W., Nov. 13th. L. G. Brock, Chairman.

TEMPORARY TREATMENT WITHOUT CERTIFICATE.

Sir,—In reply to Dr. Dillon (November 15th, p. 843), the Mental Treatment Act, in my opinion, means what it says. A "temporary" patient is "incapable of expressing himself as willing or unwilling to receive such treatment." If a patient is capable of expressing "unwillingness," then he must be certified to enter an institution. I write as a member of the Parliamentary Committee which considered the Bill.—I am, etc.,

House of Commons, Nov. 15th. A. Vernon Davies.

Sir,—Our Division recently discussed the new Mental Treatment Act, and the points raised by Dr. Dillon in the *British Medical Journal* of November 15th; there does appear to be a little confusion as to the correct procedure.

One expert considered that a patient should be admitted to a mental hospital without certification if the mental illness was of such a nature that there was some real probability of an improvement in a reasonable time, even if the patient was incapable of expressing himself as willing or unwilling to receive such treatment. Another expert pointed out that the patient must be likely to benefit by temporary treatment. In the opinion of certain practitioners, every case of mental illness sent to a mental hospital would be expected to benefit by proper supervision and treatment, even though the disease might be of a progressive nature, and therefore all cases should be admitted on the certificates of two practitioners without recourse to a justice's order. Further information on the matter is most desirable.—I am, etc.,

St. Albans, Nov. 15th. Sidney Clarke.

Sir,—The new Mental Treatment Act, Section 5, states that a patient, in order to be eligible for a recommendation for temporary treatment under it, shall, among other requirements, be incapable of expressing himself as willing or unwilling to receive treatment, and a statement to such effect has to be made and signed by both the practitioners making the recommendation. Dr. Frederick Dillon in your last issue doubts whether this section means what it says, and desires an authoritative ruling on the point.

Section 16 of the Act states that where a person has signed such a recommendation he shall not be liable to any civil or criminal proceedings on the ground of want of jurisdiction or on any other ground unless he has acted in bad faith or without reasonable care; surely this implies that if the practitioners, after a thorough psychological examination, come to the decision that the patient is insane, they can safely sign the recommendation. The object of this section of the Act is to obviate the certification of persons as of unsound mind if they are curable cases of mental disorder which are bereft of the power of volition.

Nowadays it is customary to admit almost any case as a voluntary boarder if the patient is able to sign an application form; this will be continued under the new Act, and it is probable that when this Act becomes known many cases which are now certified as of unsound mind will be received under Section 5, so great is the objection to certification among general practitioners and the public. Certification under the principal Act will only be resorted to if the patient does not recover within the time limit. An authoritative ruling on the meaning of the sentence "incapable of expressing himself as willing or unwilling" can only be afforded by the Law Lords; till then the practitioner will have to interpret the sentence to the best of his ability.—I am, etc.,

Darlington, Nov. 17th. L. Harris-Liston.

DIATHERMY ENUCLEATION OF THE TONSILS.

A Warning.

Sir,—I have reason to believe that a number of medical men are practising removal at one sitting of the whole or a large part of the tonsil by means of diathermy. That is to say, they amputate or enucleate with a diathermy electrode in place of the old-fashioned guillotine or dissector.

Now this is not the place to enter into a full disquisition on the subject, particularly as I have already done so at some length in my book on *Diathermy*.[1] But I feel it my duty to issue this warning: that extensive or complete diathermy removal of the tonsil may be followed by severe haemorrhage during the separation of the sloughs, a week or two after the operation. In these circumstances control of the bleeding is very difficult, and the patient may become exsanguinated.

As I have pointed out elsewhere,[2] if diathermy coagulation is to be used for removal of the tonsils, the operator should confine himself to very modest advances, and should not endeavour to make spectacular changes. In a word, if enucleation at one séance is desired, the operation is much more safely performed by the ordinary dissector or guillotine, bleeding points being secured by ligature, as in any other surgical operation. To do otherwise is to run a serious, and, if I may say so, after this letter, an unjustifiable risk.—I am, etc.,

London, W.1, Nov. 14th. Dan McKenzie.

COLLAPSE FOLLOWING ANAESTHETIC.

Sir,—Some may be surprised that I should be writing on this subject, but as I had the following experience I record it in the hope that it may be of assistance to others situated as I was.

The patient was a girl aged 10, and the operation was a simple appendectomy. Anaesthesia was induced with a small amount of chloroform and ether, and then open ether was used. There was no crying or struggling. The operation was completed without incident and the child put back to bed. The cough reflex had returned, and all seemed to be going well. Soon after I went in to see the child. I observed that the breathing was shallow and she was pale; the pulse rate was about 130. Gradually the pallor increased and the respiration became more shallow, when suddenly it ceased; the teeth were clenched, and the limbs flaccid. Sitting down on the bed, I lifted the child out of bed until her head was hanging perpendicularly downwards, and instantly a bright colour returned to the cheeks and some clear fluid ran out by the side of the clenched teeth—this was evidently from the pharynx and due to failure of the swallow reflex. There was no sickness or sign of spasm of the diaphragm. Respiration at once returned. I laid her back in bed, when a few minutes later the same cycle began again, the respiration becoming increasingly shallow. On this occasion I did not wait for the collapse. Again I placed her with her head downwards, and as on the former occasion there was instant return of the colour and the breathing; the teeth were still clenched, but there was no fluid from the mouth on this occasion. Once again I laid her back in bed, when gradually the failure began again. After this third time reflexes all returned and consciousness gradually became established. The third attack was witnessed by the anaesthetist and the child's medical attendant, who had been summoned. There was some vomiting later and the pulse rate remained about 130 for eighteen hours, when it steadily came down, and she made an uninterrupted recovery. The chest was *x*-rayed, but nothing unusual was to be observed.

The child has always tended to develop acidosis, and had had a large dose of glucose the night before and some hours prior to the operation. The gradual cessation of the respira-

[1] *Diathermy, Medical and Surgical, in Oto-Laryngology.* The Anglo-French Library of Medical and Biological Science. London, 1930.
[2] "Gradual Diathermy Destruction of the Faucial Tonsils." *Proc. Roy. Soc. Med.*, Section of Laryngology, vol. xxiii, September, 1930.

tion with pallor was clearly due to some change in the central nervous system, and the instant return of respiration, together with the bright colour, when the child's head was allowed to fall forward would strongly point to fall of blood pressure being an active factor.—I am, etc.,

London, N.W.1, Nov. 15th. MAURICE CRAIG.

AVERTIN ANAESTHESIA.

SIR,—The correspondence in your columns between Sir Francis Shipway and Dr. Parsons on the subject of avertin has interested me from the surgical standpoint, as I have been constantly using this drug for two and a half years in my surgical practice. I saw its use in Berlin three years ago, and, so far as I know, its properties as a general anaesthetic, especially for "routine work," were never claimed. Dr. Parsons states: "If avertin has to be given along with other anaesthetics the principal object of its use for routine work has disappeared," and that "if it has to be given in conjunction with another anaesthetic it ceases to be of primary importance." If Dr. Parsons holds this view, he is in danger of being criticized as showing a lack of knowledge of its clinical properties. Avertin is a powerful amnesic, and as such we are rid by a very safe means, at the start, of psychic shock, a very important factor to surgeon and patient alike. The second, and equally important, factor is that by its use other drugs necessary to complete anaesthesia can be used in amnesic dosage, which avoids their inevitable toxic effects following major operations in which they are used alone.

Avertin combined with other drugs which are anaesthetics but which, superimposed in amnesic doses, give a complete surgical anaesthesia, is the ideal for the surgeon. With gas and oxygen, as I saw it used by Sir Francis Shipway at Guy's Hospital, it was a boon to the surgeon and a real delight to the onlookers. With very light ether (amnesic dosage), infiltration anaesthesia, or spinal anaesthesia for major operations in the vicinity of the diaphragm, its use is a godsend. In my own surgical practice during the past two and a half years I have used avertin in combination with other drugs which are not in themselves anaesthetics, but rather amnesics, and I have witnessed a big fall in my mortality rate. This speaks for itself.—I am, etc.,

Bradford, Nov. 10th. BASIL HUGHES.

INDICATIONS FOR PERFORMING WILDE'S INCISION.

SIR,—I have to thank Mr. Layton for his reply to my letter on the above subject, published in your issue of October 11th.

As he begins by deserting his quondam leader, Sir William Wilde, whose procedure, an incision at least an inch in length *through the periosteum*, was the original subject of discussion, I might leave the matter at that quite satisfactory point. Further, Mr. Layton remarks that we should probably find ourselves in agreement after half an hour's talk on matters of detail—that is, in dealing with any individual case. This, if correct, would be all that I am concerned with, for good surgery consists in dealing in the best possible way with the patient in hand. I shall look forward to such a talk some day to reconcile our differences, but meanwhile the following are the most important points.

Mr. Layton considers that unless one of two very serious symptoms—rigidity of the neck and rigors—is present, it is unnecessary to do an immediate mastoid operation. Now these are both late symptoms, and in the hospital which I have the honour to serve are very rare, and practically only occur in cases sent in already suffering from mastoid disease. This is because at the first suspicion of bone disease the case is seen by an otologist, who operates if he considers the bone is actually involved. These late cases are so rare in our practice that they "do not materially alter the general proposition." Each of these should have been operated on long before. The patient would then have been better able to stand the operation.

My colleague Mr. William Wilson wrote in the Monsall Hospital 1926 report, reviewing several years' experience: "In no case have I opened the mastoid without finding gross septic infection. It seems to me that the only way to improve our results is by earlier operation. The danger of operation seems to be practically negligible." Further experience has confirmed this opinion, which has my complete concurrence. Very severe and even fatal cases arise in which neither of Mr. Layton's "indications" is present.

The argument that unless we advise fever hospital authorities to send for us only in cases which present one of these two symptoms, lest they do not send at all, is to assess their degree of intelligence very low. Most enlightened authorities avail themselves of the special knowledge and skill of an otologist to help them in those surgical emergencies which are his special province. Other authorities should be encouraged to follow their example. Finally, to delay operation on the mastoid till indications of a spread beyond the mastoid are present is not to be in advance of the times, but to be well behind them.—I am, etc.,

Manchester, Nov. 15th. E. S. BURT HAMILTON.

RAYNAUD'S DISEASE.

SIR,—Dr. Broadbent's memorandum on Raynaud's disease (November 8th, p. 778) would have had its interest increased still further had he given not only the systolic, but also the basic, blood pressure. In the *Journal* for August 23rd of this year I pointed out in my article on Raynaud's disease that the basic pressure was raised, and as a result the blood found a difficulty in entering the vasa vasorum for the supply of the muscular fibres of the arterial wall. The patient referred to by Dr. Broadbent had a low systolic pressure, so that a slight raising of the basic pressure would have a disturbing influence on the ratio of the two pressures, and bring about the same result as obtains when both pressures are raised considerably.

The point is important, as I have found that the use of parathyroid has a beneficial result in a large proportion of all cases where the basic pressure is raised. This is especially so in cases of rheumatic fever which occur in children whose food has contained too little lime. Such children have unstable constitutions, and their blood pressures are quickly driven upwards by the introduction of poison into their blood. These children, however, respond readily to treatment in the form of lime, together with parathyroid. In the October number of the *Medical Review of Reviews* I point out that in chorea the basic pressure is raised, and as a consequence the walls of the cerebral arteries are so affected as to supply the brain with blood in a somewhat erratic fashion, thus giving rise to the irregular movements. It is in these cases, however, that the giving of calcium and parathyroid is found to be so beneficial by reducing the basic blood pressure.—I am, etc.,

Swansea, Nov. 11th. G. ARBOUR STEPHENS.

MEDICAL RECIPROCITY WITH FRANCE.

SIR,—In the period before the war, when it was necessary for France to guard herself from the invasion by Russians, Poles, and others, who were anxious to practise as medical men, the conditions for admission became very stringent. It was, moreover, practically impossible to discriminate between British medical men and those of other countries in the treatment meted out. To-day things have changed. The susceptibilities of Russia no longer need to be considered. It would be quite possible for France to treat directly with England, and for the two countries to arrange new terms of medical reciprocity satisfactory to both.

At present it is necessary for a British medical man to pass the examinations for the Bachelor of Arts and of Science, which are preliminary to a medical student's career in France, then all the medical examinations, keep all the terms of residence, and secure from the Minister of Public Instruction a permit to practise in France. As against this, a French medical man may practise in England if he passes only the final examination of the Conjoint Board. The Frenchman's task is easy, the Englishman's impossible. There is no reciprocity in it at all.

At the moment very few English practitioners are left in France. Yet they are wanted in Paris, on the Riviera,

and would be welcomed in many health resorts, such as Aix, Vichy, Vittel, Brides, Evian, Plombières, etc., which towns realize their value in attracting visitors. It would not be necessary to press for full reciprocity, but an arrangement might be come to with the French authorities to admit up to, say, one hundred British medical men who fulfil certain conditions, just as the Principality of Monaco allows four British doctors to practise there. I cannot but think that the time is ripe and propitious for reopening the question of reciprocity, to which the French authorities are now in a position to give a favourable response.—I am, etc.,

Knowle, Topsham, Devon, Nov. 5th. D. W. Samways.

Obituary.

Dr. Arthur Richard Frederic Exham, who died on October 19th in Market Drayton, at the age of 73, had been conducting his practice until within a few weeks of his death. He received his medical education in Trinity College, Dublin, where he graduated M.B., B.Ch. in 1879, and proceeded M.D. ten years later. He commenced practice at Ashley in 1880, but removed in 1882 to Market Drayton, where he took a very active part in the social, as well as the medical, life of the town and district. He was surgeon to the Cottage Hospital, medical officer to the Post Office and various assurance companies, certifying factory surgeon, and medical officer to the workhouse and provident dispensary. He devoted fifty years of his life to the Drayton Union, and last March was presented with an inscribed silver salver by past and present guardians and officers as a token of appreciation of the services he had rendered. For many years he assisted in the work of the local St. John Ambulance Brigade, and in 1910 was prominent in the formation of its Market Drayton division. He subsequently became superintendent and, later, district officer, and assistant commissioner. In 1926 he was appointed commissioner for the No. 7 District, including Shropshire and Hereford, and more recently still he was created Knight of Grace of the Order of St. John of Jerusalem. Joining the Market Drayton Volunteer Company in 1884 as a lieutenant, he continued until the ending of the Volunteer movement, when he retired with the rank of major, and was awarded the Queen Victoria decoration for long service. On the outbreak of the great war he took command of the National Reserves in Market Drayton, and so continued until the armistice. Dr. Exham was chairman of the Shropshire Panel Committee for many years, a member of the Executive Committee of the Shropshire Branch of the British Medical Association, and a past-president of it also. He was instrumental in forming four musical societies in Market Drayton, was a strong supporter of St. Mary's Parish Church, president of the Market Drayton Book Society, a governor of the County Grammar School, a keen supporter of the University Extension movement, and a member for many years of the Market Drayton Cricket Club. The funeral, on October 23rd, was widely attended by representatives of the societies in which Dr. Exham had interested himself so actively.

Dr. George William Peake Maitland of Oldham, who ried on November 7th, aged 54, was born in India in 1876, and was educated at George Watson's College, Edinburgh. At Edinburgh University he had a distinguished student career, during which he obtained medals in zoology, practical anatomy, and materia medica, and graduated M.B., Ch.B. in 1901. On going into general practice he acted as assistant for five years in Manchester, and then settled in Shaw, where he acquired a large practice. His civil work was interrupted by the great war, and from the years 1915 to 1918 he was in the R.A.M.C., serving with a temporary commission in Salonika and on the hospital ship *St. Andrew*, being twice mentioned in dispatches. He retired from the Army with the rank of captain, and again resumed practice, in which he was engaged at his death. He was a member of the Oldham Division of the British Medical Association. He leaves a widow and four daughters.

The following well-known foreign medical men have recently died: Professor Hendrik Zwaardemaker, aged 73, formerly director of the Physiological Institute at Utrecht, and author of a work on the physiology of smell and a textbook on otology; Inspector-General Heuyer, Commander of the Legion of Honour, aged 83; Dr. Salva, professor of ophthalmology at the Grenoble School of Medicine; Dr. Gustav Rigler, professor of hygiene at Breslau, and author of several works on epidemic diseases; Professor Friedrich Carl Hermann Matthaei, director of the obstetrical and gynaecological department, St. George's Hospital, Hamburg, aged 66; Professor Johannes Ilberg of Leipzig, an eminent medical historian, who was awarded the Leibnitz medal by the Prussian Academy of Sciences in 1910; Dr. Emile Valude of Paris, formerly editor of *Annales d'Oculistique*; Dr. Roy, a Paris ophthalmologist; Dr. Luis Urrutia, an abdominal surgeon of Madrid; and Dr. G. B. Ugbetti, formerly professor of general pathology at Catania.

Medical Notes in Parliament.

[From our Parliamentary Correspondent.]

This week the House of Commons discussed Palestine on Monday, read the Agricultural Land Bill a second time on Tuesday, and went into Committee on the Education (School Attendance) Bill on Thursday. Mr. Culverwell, who had drawn a place in the ballot for Wednesday, gave notice of his intention to move that "in order to restrict the increase and, if possible, to effect a decrease, in the number of mental defectives, procreation by certain defectives should be prevented by such measures as segregation, prohibition of marriage, or sterilization." This motion was unlikely to be reached, as others had precedence.

Mr. Freeman gave notice that, on November 20th, he would ask the Minister of Health whether he would consider the amendment of the Medical Act of 1886 with a view to controlling the advertisements of drugs in medical papers.

A Workmen's Compensation Bill, dealing with the claims of injured men who are certified as fit for light work, received a second reading in the House of Commons on November 14th.

Dr. Drummond Shiels, Under Secretary for the Colonies, returned to the House of Commons on November 15th, after illness. Mr. Lloyd George, in opening a debate on Palestine, referred to the general satisfaction at Dr. Shiels's return. Dr. Elliot also welcomed Dr. Shiels, who, he understood, had only left his bed that day; members of the medical profession knew the strain that that involved.

A General Medical Service.

Replying to Mr. Freeman, on November 13th, Mr. Greenwood said he had received a copy of the proposal of the British Medical Association for a General Medical Service for the Nation. The principles on which it was based would receive careful consideration in any further public provision of medical services.

Mental Treatment.

Mr. Greenwood said, in reply to Mr. Kinley on November 13th, that it was impossible within the limits of a parliamentary answer to describe the courses of treatment given in public mental hospitals, these varying according to the needs of the individual patient. Until he learned of cases to the contrary, he could assure Mr. Kinley that asylums in every case had a definite course of treatment to which patients were subjected. Statutory provision already existed under which patients who no longer required institutional treatment could be discharged or released on trial in order to receive treatment by registered medical practitioners or by out-patient departments set up by local authorities. Patients could also be released from institutions on the application of their friends, provided medical attention was forthcoming outside.

Psittacosis.

Replying to Mr. Clarke, on November 13th, Mr. Greenwood said the number of deaths registered in England and Wales during the period January 1st to September 30th in respect of which psittacosis appeared on the medical certificate as the cause was 15. There were no deaths recorded from this cause in 1927 or 1928, but there was one death in 1929 registered as due

to broncho-pneumonia and septicaemia, which, as the result of the inquiry made in accordance with the usual practice of the Registrar-General, was attributed to psittacosis.

National Health Insurance.

In reply to Mr. Stephen, on November 12th, Mr. W. ADAMSON said he would send him a statement of the names of the medical referees for Glasgow under the National Health Insurance Act. Their appointment was made, with the approval of the Secretary of State for Scotland, by the Department of Health for Scotland, who selected doctors best qualified in its opinion to act as referees. The cost of the referee service was a charge on national health insurance funds. There were no regulations for the guidance of medical referees under the Act. Cases might be referred to the regional medical officer for his opinion either as to capacity for work or state of health at any stage of illness. Medical referees merely expressed an opinion on the question of incapacity. The decision whether benefit should be continued or stopped rested entirely with the approved society. He would be prepared to institute inquiries about any references made, without real reason, to the regional medical officer.

Bellahouston Hospital.

Replying to Mr. MacLean, on November 13th, Mr. ROBERTS said the premises and site of Bellahouston Hospital, Glasgow, were not held on lease, but by agreement with the Scottish Red Cross and the Corporation of the City of Glasgow. He did not consider that present requirements justified continuance of the hospital beyond January next, and had arranged with the committee of Erskine House to increase the number of ex-service patients treated at Erskine House, while providing for any out-patients at the Ministry clinic in Sauchiehall Street and for cases requiring urgent medical or surgical treatment at the Royal Infirmary. These arrangements in no way prejudiced the interests of limbless men or the purpose for which Erskine House was founded. They merely extended the constant practice of the last eleven years.

International Drug Traffic.

Mr. CLYNES, replying to Mr. Mander on November 17th, said that at the recent preliminary conference of Governments of countries manufacturing drugs from opium and coca leaf the Soviet delegation supplied a list of figures for 1927–28 which showed that 76 kilos of heroin, 426 of dionine, 1,946 of codeine, 425 of morphine hydrochloride, 24 of pantopon, and 447 of cocaine were manufactured. In 1928–29 the figures were: heroin 31 kilos, dionine 234, codeine 1,681, morphine hydrochloride 470, pantopon 145, and cocaine 735. The figures in 1929–30 were: heroin 117 kilos, dionine 436, codeine 2,854, morphine hydrochloride 632, pantopon, 239, and cocaine 1,120. Figures of production of the drugs were not available for Turkey, but according to the most recent statistics the annual export of drugs amounted to 5,216 kilos of morphine and 8,652 kilos of diacetyl morphine. In India, from November 1st, 1924, to October 31st, 1925, there were manufactured 140 lb. 5 oz. of morphine hydrochloride, 2,000 lb. of crude morphine hydrochloride, 14 lb. 11 oz. of morphine acetate, 2 lb. 2 oz. of codeine, and 19 lb. 15 oz. of narcotine. From January 1st, 1926, to December 31st, 1926, there were manufactured 224 lb. 3 oz. of morphine hydrochloride, 4,099 lb. of crude morphine hydrochloride, 4 lb. 4 oz. of morphine acetate, and 23 lb. 5 oz. of morphine tartrate. From January 1st, 1927, to December 31st, 1927, the figures were: morphine hydrochloride 57 lb., crude morphine hydrochloride 281 lb., morphine tartrate 8 lb. 11 oz., and codeine 2 lb. 10 oz. From January 1st, 1928, to December 31st, 1928, there was manufactured 159 lb. 7 oz. of morphine hydrochloride, 738 lb. of crude morphine hydrochloride, 5 lb. 6 oz. of codeine, and 5 lb. of narcotine. From January 1st, 1929, to December 31st, 1929, the figures were: morphine hydrochloride 119 lb. 6 oz., codeine 13 lb. 6 oz., and narcotine 10 lb.

Cerebro-spinal Fever.

Mr. SANDERS told Lieut.-Colonel Heneage, on November 17th, that in 1928 in England and Wales there were 9 cases of cerebral meningitis among troops, with a ratio of 0.11 per 1,000; in Scotland there were 3 cases, with a ratio of 0.06. In 1929, in England and Wales there were 25 cases, with a ratio of 0.29, and in Scotland 3 cases, with a ratio of 0.06. Included in the above figures were 4 cases of cerebro-spinal fever, with a ratio of 0.05, in 1928 in England and Wales, and in 1929 20 cases, with a ratio of 0.23. In Scotland, in 1929, there were 2 cases, with a ratio of 0.04. Among the civil population in England and Wales 412 cases of cerebro-spinal fever were notified in 1928, with a ratio of 0.01 per 1,000; in 1929 there were 650 cases, with a ratio of 0.016. This disease was not notifiable throughout the whole of Scotland, but the figures for thirteen of the principal towns of Lanarkshire and Fifeshire showed that in 1928 280 cases were notified, being a ratio of 0.10 to 1,000 population. In 1929 463 cases were notified, with a ratio of 0.17.

Poison Gas.

Mr. DALTON, on November 17th, told Major Nathan that no representations had been received from foreign Powers about the promotion by His Majesty's Government of experiments in the production and utilization in warfare of poisonous gases and similar noxious substances.

Mr. MACDONALD, replying to Mr. White on the same day, said that the Government had given consideration to the steps which might be necessary for protection of the civilian population in time of war against the use by hostile Powers of asphyxiating poisonous gases. No schemes or suggestions had been communicated to the local authorities for the purpose.

Mr. SANDERS, on November 17th, told Mr. Freeman that a comparison of the gross and microscopic appearance of the lungs of men killed by irritant gases in France with those of animals exposed to the same substance showed that the injuries were of similar nature and character. Further study of such animals gave evidence of the mode of action of the poison and its effects on vital organs. It was thus possible, by correlating these experiments with clinical observations on gas patients, to formulate curative treatments. There was no reason to believe that the connexion between the effect of gas on animals and its effect on human beings, which experience in the war established, did not continue to hold good.

Experiments on Dogs.—Sir ROBERT GOWER asked the Prime Minister, on November 12th, whether he was prepared to grant facilities for the passage during the present session of a bill to make painful experiments on dogs illegal. Mr. MACDONALD replied that, in view of the state of public business, he could hold out no hope that time would be found for this or similar bills.

Instruction on Birth Control.—On November 12th Mr. FREEMAN asked whether the attention of the Minister of Health had been called to the recent action of the Warwickshire County Council in authorizing their medical officers to give medical information on birth control to married women. Mr. GREENWOOD replied that he had been in communication with the Warwickshire County Council on this matter, and had indicated to them the limited extent to which, in the view of the Government, maternity and child welfare centres might properly be used for this purpose.

Milk for School Children.—Sir CHARLES TREVELYAN told Mr. Alpass, on November 13th, that in the week ending November 1st 35,000 school children received milk free and 48,000 for payment, under arrangements for the provision of meals. It was estimated that 500,000 children, or about 9 per cent. of the elementary school population of England and Wales, received a daily supply of milk under schemes organized by the National Milk Publicity Council. The corresponding estimate six months ago was 400,000.

Imported Cream.—Mr. GREENWOOD told General Clifton Brown, on November 13th, that he would consider his suggestion that imported cream should be subjected to similar examination for tubercle as milk was under the Imported Milk Regulations. Most of the cream imported from the Continent was sterilized, and the danger of tubercle bacilli in such cream was practically negligible.

Muck at Mucking.—Mr. GREENWOOD stated, answering Mr. Oldfield on November 13th, that he had been informed by the Hammersmith Borough Council that they had entered into a new contract for the disposal of their refuse at Mucking, near Orsett, by adequate layering, in accordance with any regulations in force relating to the deposit of refuse on the land. They were acting within their discretion, and as matters stood he had no power to intervene.

Preservation of Records of School Children.—On November 17th Sir C. TREVELYAN informed Mr. Somerville Hastings that it was left to each local education authority to decide how long they should keep the records of medical inspections of school children. He understood, however, that they were generally kept for about five years after the children had left school.

Licences for Experiments on Animals.—On November 17th Mr. CLYNES told Mr. Freeman that an applicant for a licence to perform experiments on living animals was interviewed by an inspector, who also obtained information from the head of the laboratory where the applicant proposed to work, and made any other inquiries that he might consider necessary on the particular case. The inspector's inquiry extended both to capacity and to character.

Notes in Brief.

The number of persons in receipt of poor relief in England and Wales (excluding persons in receipt of domiciliary medical relief only) was 1,107,125 on March 15th, and 949,008 on October 25th.

Over 51,000 houses were built under the Housing Act, 1924, in England and Wales during the year ended September 30th.

The Department of Health for Scotland is engaged on an inquiry in the schools of the four large cities in Scotland and of the county of Lanark to ascertain the physical condition of children whose parents have been unemployed for a considerable time.

The Services.

TERRITORIAL DECORATION.

THE King has conferred the Territorial Decoration upon the following officers of the Royal Army Medical Corps (T.A.), under the terms of the Royal Warrant of October 13th, 1920: Major Alexander Leggatt, D.S.O., Captain John Rowland, *M.C.*

DEATHS IN THE SERVICES.

Colonel Charles MacTaggart, C.S.I., C.I.E., Bengal Medical Service (ret.), died at Campbeltown, Argyllshire, on September 18th, aged 69. He was born on March 27th, 1861, the son of Charles MacTaggart of Campbeltown, and was educated at Glasgow University, where he graduated as M.A. in 1881, and as M.B., C.M., with honours, in 1885. Entering the Indian Medical Service as surgeon on April 1st, 1886, he attained the rank of colonel on March 29th, 1915, and retired on March 29th, 1920. After about three years in military employ, he entered civil employment in the jail department in the North-West, now the United Provinces, and served as superintendent of the Central Jails at Benares, Agra, Allahabad, and Lucknow successively. In 1902 he was appointed Inspector-General of Jails in that province, and held that post until promoted to colonel in 1915. In 1907 he served as a member of the Indian Factory Labour Commission, and in 1909 was appointed a member of the Legislative Council of the province. On promotion to administrative rank, he became Inspector-General of Civil Hospitals in the same province, and held that post until he retired after five years' tour of office. He received the C.I.E. on December 11th, 1911, and the C.S.I. on June 3rd, 1919. He was a keen sportsman, both in India and in Scotland, and a good shot. After his retirement he was made a magistrate for Argyllshire. He married Mary, daughter of Mr. G. B. M. Beatson of Campbeltown.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on November 14th the degree of M.B., B.Chir., was conferred on J. Vaughan-Bradley.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary Council meeting was held on November 13th, when the President, Lord Moynihan, was in the chair.

A recommendation of the Court of Examiners that the Chesterfield and North Derbyshire Royal Hospital be recognized for the twelve months' surgical practice required of non-members before admission to the Final Fellowship Examination, was approved and adopted.

Mr. F. J. Steward was re-elected a member of the Committee of Management.

The President reported that the term of office of Mr. C. H. Fagge and Mr. Russell J. Howard on the Court of Examiners would expire on December 10th next, and that the vacancies thus occasioned would be filled up on December 11th, together with the vacancy occasioned by the death of Mr. T. P. Legg.

The President reported that in accordance with the application to the Home Office, the research laboratories of the College have now been registered as a place at which experiments on living animals may be performed under the Act 39 and 40 Vic., cap. 77.

The President reported that he had granted the use of the lecture theatre for five lectures on "Diseases of bacteria," by Mr. F. W. Twort, superintendent of the Brown Animal Sanatory Institution, to be delivered on December 1st, 3rd, 5th, 8th, and 10th at 4 p.m. each day.

The congratulations of the Council were offered to Sir Arthur Keith on his election as Rector of the University of Aberdeen.

Honorary Fellowship.

Dr. Frederick Grant Banting, *M.C.*, LL.D., D.Sc., M.R.C.S., Professor of Medical Research in the University of Toronto, was elected an honorary Fellow of the College.

Primary Fellowship Examination in Australia.

The following assessors and officers, nominated by the College of Surgeons of Australasia for the Primary Examination for the Fellowship to be held at Melbourne, Australia, in 1931, were appointed: Assessor for Anatomy, Professor F. Wood Jones; Assessor for Physiology, Professor W. A. Osborne; Superintendent of the Examination, Associate-Professor Summers; Superintendent of Dissections, W. A. Hailes. The date of the examination was fixed for the last two weeks in August. It was reported to the Council that Professor G. A. Buckmaster and Professor William Wright would accept nomination as the examiners in physiology and anatomy respectively for the Primary Fellowship Examination in Australia next year.

Diplomas and Licences.

Diplomas of Membership were granted to 149 successful candidates.

Diplomas in Public Health and in Gynaecology and Obstetrics were granted jointly with the Royal College of Physicians to 22 candidates and 1 candidate respectively.

The names of the successful diplomates were given in the report of the comitia of the Royal College of Physicians printed in our issue of November 8th (p. 800).

Licences in Dental Surgery were also granted to 53 candidates.

Medical News.

THE Glasgow University Club, London, will dine at the Trocadero, Piccadilly, on Friday, December 12th, at 7.30 p.m., with His Grace the Archbishop of Canterbury in the chair. Any Glasgow University men who, though not members of the club, desire to be present are requested to communicate with the honorary secretaries, 62, Harley House, N.W.1.

THE National Association for the Prevention of Tuberculosis has arranged for a series of lectures to be given by Dr. Harley Williams next week. On Monday, November 24th, a lecture will be delivered at the Village Club, Kingsclere, Hants, at 6 p.m.; on Tuesday at the Town Hall, Eastleigh, Hants, at 7.30 p.m.; and on Wednesday at the Town Hall, Lymington, at 8 p.m.

PARTICULARS of the lectures and demonstrations arranged for next week by the Fellowship of Medicine will be found in our Diary of Post-graduate Courses published in the *Supplement* at page 236. Copies of syllabuses and tickets of admission can be obtained from the Fellowship, 1, Wimpole Street, W.1. The list of special courses arranged for 1931 is now available.

UNDER the auspices of the Fellowship of Medicine a course in infants' diseases, with special reference to nutritional disorders and dietetics, will be held at the Infants Hospital, Vincent Square, Westminster, from December 1st to 14th. The course is specially designed for medical officers of welfare centres and others interested, and will include lectures, demonstrations, and visits to institutions such as St. Margaret's Hospital; the United Dairies pasteurizing plant, Willesden; and the venereal diseases centre in Holborn. The fee for the course will be three guineas, and further information may be obtained from the secretary of the Fellowship, 1, Wimpole Street, W.1.

A POST-GRADUATE lecture on cancer will be delivered in the Halifax Infirmary, in conjunction with the Halifax Division of the British Medical Association, by Professor Beckwith Whitehouse, on November 26th, at 3.30 p.m. His subject will be uterine haemorrhage, with special reference to malignant disease.

THE fourth annual congress and exhibition of the British Institute of Radiology, incorporating the Röntgen Society, will be held at the Central Hall, Westminster, from December 3rd to 5th, from 10 a.m. to 7 p.m. each day. Many new types of apparatus will be on view, including transformer sets, control tables with devices for saving the operator's time, Potter-Bucky diaphragms, screening stands, combined and simple type couches, mobile and portable units, *x*-ray tubes, and protection devices. There will be special displays by film manufacturers, and lectures and technical papers will be delivered in the Congress Hall. The annual dinner will be held at the Trocadero Restaurant, Piccadilly Circus, W., on Friday, December 5th, at 7.30 p.m.

THE twenty-first annual exhibition of electrical, optical, and other physical apparatus is to be held by the Physical Society and the Optical Society from January 6th to 8th at the Imperial College of Science and Technology, South Kensington. It will include a trade section, comprising exhibits of manufacturing firms, a section for the work of apprentices and learners, for the encouragement of craftsmanship and draughtsmanship in the scientific instrument trade, and a research and experimental section, which will be arranged in three groups: (1) exhibits illustrating the results of recent physical research; (2) lecture experiments in physics; and (3) historic physical apparatus. The exhibition committee (1, Lowther Gardens, Exhibition Road, London, S.W.7) is inviting offers, from research laboratories and institutions and from individual research workers, of exhibits suitable for inclusion in this research and experimental section.

THE municipal council of Rheims has opened a subscription for the erection of a memorial to Dr. Langlet, who was mayor of the town during its bombardment.

THE third International Congress on Radiology will be held in Paris from July 27th to 31st next year. The proceedings are to be divided into six sections—namely, radio-physics, radio-biology, radio-diagnosis, radiotherapy, medical electrology, and natural and artificial sun-ray treatment. All papers to be presented to the congress, together with a summary of the contents in French, English, and German, must be sent by January 1st next to the secretariat of the Congress, 34, Boulevard de Vaugirard, Paris XV, whence full particulars may be obtained. An exhibition of radiological apparatus is to be organized in connexion with the congress.

THE two hundred and twentieth dinner of the Edinburgh University Club of London was held on November 12th at the Café Royal; Sir James Barrie was in the chair for the first time since his appointment as Chancellor. He spoke of progress of the life of the University. The coming of the ladies had changed the undergraduate's life. He had been fascinated at the dances which he had attended, and a splendour and polish which academic life had not known in his day. But the increasing tendency of students to live away from Edinburgh and travel in by motor bus or bicycle caused him anxiety. Dr. L. F. Knuthsen proposed the health of the guests, and Lord Moynihan expressed the thanks of a distinguished company in an eloquent speech full of humorous insight. Lord Aberconway, in proposing the health of the chairman, dwelt on the characters in his plays with the zeal of a true admirer. The evening was a great success and the speeches brief and memorable. Drs. Shires and A. Landale Clark were responsible for the arrangements.

AT the Cheyne Hospital for Children, Chelsea, S.W.3, a small private ward has now been set aside for children between the ages of 3 and 13 who require prolonged treatment but whose parents are unable to afford the full nursing home fee, yet are able to pay more than the small maintenance charge made in the general wards of the hospital. The diseases for which treatment is available in this ward include: osteomyelitis, anterior poliomyelitis, dislocated hip, surgical tuberculosis, certain forms of infantile paralysis, rickets, rheumatoid arthritis, chorea, and heart disease. Minor operation cases, epilepsy, mental derangement, infectious cases, and spastic paraplegia are not eligible. A weekly charge of 3 to 5 guineas is made by the hospital, and further particulars can be obtained from the secretary.

THE Swedish Medical Society has awarded its Pasteur gold medal to Dr. Emile Roux, director of the Institut Pasteur of Paris. The award is made every ten years.

DR. W. E. MCCULLOCH has conducted an inquiry into the dietaries of the Hausas and Town Fulani of Katsino Town, Northern Nigeria; his report was published in the *West African Medical Journal*, 1929–30, vol. iii, together with observations on the effects produced on the national health, and some recommendations. This report has now been reprinted in pamphlet form by the Government printer, Lagos.

DR. PERCY J. KELLY (Surgeon-General) has been appointed an official member of Executive Committee and of the Legislative Council of the Colony of British Guiana.

THE Commonwealth Fund of the City of New York, a philanthropic foundation existing since 1918, and supported by gifts from the late Mrs. S. V. Harkness, has established for British graduate students a number of fellowships tenable for two years in some recognized branch of learning in an American university. In 1930 there were 128 entries, and thirty-two fellowships were granted—twenty in the faculty of science, and twelve in that of arts. The scientific subjects of study included biochemistry, zoology, physics, sanitary engineering, and organic chemistry. Applicants must be unmarried and not more than 30 years old on September 1st of the year of award. For the conditions of appointment and the emoluments available application should be made to the secretary of the committee of the Commonwealth Fund Fellowships, 35, Portman Square, W.1. Applications for fellowships in 1931 must reach the secretary not later than February 9th.

ACCORDING to the *Bulletin de l'Office International d'Hygiene Publique*, 4,618 cases of small-pox, with 1,699 deaths, occurred in the various French colonies in 1928.

MESSRS. GEORGE ALLEN and UNWIN, Ltd., announce for early publication *Dr. Barnardo: Physician, Pioneer, Prophet*, by J. Wesley Bready, M.A., B.D., Ph.D.

A BUST of the well-known laryngologist Dr. Lermoyez has recently been unveiled in the Hôpital St. Antoine, Paris, by Professor Menetrier, president of the Académie de Médecine.

DR. CLAUDIUS REGAUD, director of the Institut du Radium, and professor at the Institut Pasteur of Paris, has been created Commander of the Legion of Honour.

DURING 1926 109 cases of small-pox occurred in Paris, with 22 deaths, a mortality of 20.18 per cent., and 63 cases in the suburbs, with 17 deaths, a mortality of 26.98 per cent. In 1927 62 cases occurred in Paris, with 18 deaths, a mortality of 29.03 per cent., and 78 cases, with 30 deaths, in the suburbs, a mortality of 38.48 per cent. This outbreak of small-pox in a country where vaccination is compulsory is explained by the fact that the law is not strictly observed, especially as regards revaccination. Moreover, the inspection of immigrants, especially from North Africa, where small-pox is rife, is often carried out in too summary a fashion.

A MEMORIAL tablet to the late Professor Paul Lecène is to be affixed to the Hôpital St. Louis, Paris, where he was surgeon. Subscribers of 100 francs and upwards will receive a medal of Lecène. Subscriptions should be sent to M. Georges Masson, 120, Boulevard St. Germain, Paris VI[e].

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The ***TELEPHONE NUMBERS*** of the British Medical Association and the *British Medical Journal* are *MUSEUM 9861, 9862, 9863,* and *9864* (internal exchange, four lines).

The ***TELEGRAPHIC ADDRESSES*** are:

EDITOR OF THE *BRITISH MEDICAL JOURNAL, Aitiology Westcent, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

Natural Labour after Caesarean Section.

"W. M." asks whether anyone knows of a case of a woman whose first baby was delivered by Caesarean section (not performed for contracted pelvis) having had another baby naturally.

Analgesia in Midwifery.

DR. A. J. HAWES (Wisbech) asks for information as to the methods of anaesthesia and analgesia (if any) commonly used in obstetrics by the midwives of the Scandinavian countries—Denmark, Norway, and Sweden.

Asthma.

"I. T. S." writes: I should be glad to know if any medical practitioner has had experience of the magnesium hyposulphite treatment for asthma. Are there any contraindications to this treatment, and would there be any risk in giving it to a case of bronchial asthma of over twenty years' duration? This patient has tried all the usual treatments, and has been investigated "from top to toe," but with little or no improvement. I should be grateful for details of the method—correct dosage, frequency of injections, and length of treatment.

Inexpensive Dressings.

"CH.B." writes: A few weeks ago someone inquired about cheap dressings for a poor person with a profusely discharging wound. In my judgement nothing can beat sawdust bags made of gauze, and stuffed with deal sawdust, as recommended by Mr. Cathcart of Edinburgh. They can be sterilized in a sterilizer or baked at home in an oven.

Constipation in a Child.

"A. M." writes, in reply to "K. A.": I would suggest that possibly this is a case for wise and understanding nursery management. Is the patient a nervous child or the child of nervous parents, or perhaps the charge of an unwise nurse? Perhaps he is ashamed of it, or regards himself as a wonderfully interesting case. Perhaps he is given quantities of stodgy food. If he had a direct incentive to do as others do, such as making this a condition of remaining at a well-liked boarding school, or could be persuaded to get his mind right off it, he would no doubt succeed. Perhaps the child feels hopeless about it, or may be

in dread of punishment or disgrace. Nervous children will often entirely conceal such feelings. Personally I should not give any of the drugs mentioned. I find isacen suitable for children, and they like the small size of the tablets. One may be taken each night.

"J. R. D." writes: My elder son, now aged 10, began to have fairly severe constipation at the age of 1½ to 2 years; he passed enormous hard stools if the bowels had not been open for a day or two, and even with daily motions the stools were very large, and it was difficult to correct this condition. Great care has been taken to go to stool at fixed hours, but paraffin and sometimes also syrup of figs have had to be continued daily. When 1 to 2 years old he passed several times a more or less complete bowel cast. He still takes about three drachms of paraffin daily, and passes one stool each day; not nearly so large in comparison as formerly. About once a week there is no evacuation, and then the laxative syrup is given in addition. The only real point of interest is that he is slowly "growing out of it." He is active and on the highly strung side. He was a nervous infant, awakening at a sound, and some years ago was for a long period subject to acidosis attacks. These are now prevented by alkaline draughts, given at the first warning. My other boy is quite normal in disposition and habits.

Cyanosis with Collapse.

DR. T. H. WIGNALL (Manchester), replying to the inquiry of Dr. L. R. Lemprière on November 15th (p. 848) about his case of cyanosis with collapse, writes: In my capacity of works surgeon to the British Dyestuffs, Blackley, I have seen many cases of acute aniline poisoning, and the case so clearly described by Dr. Lemprière strongly suggests acute "anilism. The boy was treated quite properly for the condition and recovered, as these cases, when not too severe, do. I think arsenic cannot be blamed. In any future case I should advise examination of blood for methaemoglobin, and, as a preventive precaution, I should advise boys not to get paint colours in the mouth or on the hands. I do not think any medicinal form of aniline derivatives had been taken in this case. Acetanilide has produced similar results in susceptible persons, and recovery without detriment usually occurs.

"R. C." writes in reply to Dr. L. R. Lemprière's inquiry: The case seems to be one of methaemoglobinaemia (or sulpho-haemoglobinaemia). Vide Saville's *System of Clinical Medicine*, fifth edition, p. 38.

Income Tax.

Assessment of Nursing Home.

"X. X." has been in surgical practice for some years, and in April, 1929, commenced a surgical home as an adjunct to his practice. The consulting room and *x*-ray room are on the same premises. The inspector of taxes claims to treat the home as a separate matter, which will adversely affect his income tax liability, and an appeal to the Commissioners has been lodged.

*** The matter is not free from doubt, and a decision will to some extent turn on the precise facts of the case, but on the whole we think that the inspector has the stronger legal position. The "home" is in the nature of a business run in connexion with a practice, and some of the distinguishing marks of a profession are not present in the ownership and management of a "home." The two do not necessarily constitute a single unit of assessment because they are under the same control and ownership, and carried on in the same premises. The profits of a business are assessable under a different "case" of Schedule D from those of a profession, and on the facts the "home" may properly be held to be a "business" managed and owned by a professional man.

Cash Basis.

"TAY" bought a practice as from August 1st, 1929, and is, of course, assessable in respect of the year 1929-30 on the amount of the profits of the practice for the period from August 1st, 1929, to April 5th, 1930. Can he claim to calculate his gross income at the amount of his cash receipts?

*** No; the correct basis is the amount of the cash receipts plus the amount of the outstanding debts as at April 5th, 1930, but after taking off that sum a carefully estimated allowance for bad debts. It will be realized that in such circumstances the adoption of the cash basis would mean deducting eight months' expenses from the equivalent of five or six months' gross income. The cash basis is legitimate only when the cash receipts for the earlier years fairly counterbalance that part of the year's bookings which are uncollected at the end of the year.

Radium Needles: Allowance for Exhaustion.

"Y. Z.'s" firm has about £1,000 worth of radium in needles, and has claimed 25 per cent. wear and tear allowance for income tax purposes on the ground that as used the life of the needles is not more than four years. The inspector of taxes declines to allow depreciation, and points out that replacement expenditure can be allowed when the needles are renewed.

*** The inspector is probably correct in refusing the depreciation allowance, because that is applicable only to "plant and machinery," a phrase that implies something substantial, and having moving parts suffering wear and tear by friction, etc. The replacement allowance applies to loose tools, implements, etc., and, on the whole, does seem to cover such apparatus as radium needles rather more appropriately. But the result of waiting for the allowance of replacement expenditure—if and when the needles are renewed—imposes a clear hardship, and "Y. Z." is justified in not yielding up his contention without a struggle. An alternative contention which appeals to us as more capable of sound argument would be somewhat as follows: Both the provisions so far discussed relate to assets which in themselves are permanent, but which suffer wear and tear in use, and the distinction does not work unfairly provided that the "tools" are individually comparatively inexpensive, which is normally the case. Radium needles, however, are different in their nature, in that they have in any case a limited effective life. In this they are analogous to "consumable stores"—such as stocks of material, coal, contractors' equipment, etc.—the practice with regard to which is to estimate the amount consumed for each respective contract or over the year's working. On that line of approach an allowance might be claimed, not as "wear and tear," but as the amount "consumed," it being understood that when renewal does take place an allowance shall be given of the replacement cost, less the sums allowed in respect of past "consumption."

LETTERS, NOTES, ETC.

Diet and Efficiency of Field Labourers.

IN an article reprinted from *Tropical Agriculture* (vol. vii, No. 2, p. 40) Dr. E. A. Seagar, professor of hygiene and sanitation, Imperial College of Tropical Agriculture, gives a preliminary account of an investigation into various influences adversely affecting the efficiency of agricultural labourers in Trinidad, with especial reference to diet, health, fatigue, and psychological factors. The inquiry began a few years ago, and included a systematic collection of dietetic and medical records of about 800 East and West Indian labourers on sugar and cacao estates, which was undertaken partly to establish a correlation between diet and disease. Among the general results of the survey the dietary of the East Indian labourer appears to be superior in some respects to that of the West Indian, especially in sugar plantations, where the dietary statistics are stated to be consistently better. In both groups, however, the staple articles of diet—namely, rice, white flour, salt fish, and Irish potatoes—were found to be deficient in fats, proteins, and vitamins. The native workers apparently prefer to buy imported and tinned foods rather than cultivate more nutritious products at home. Health statistics revealed that a large number of labourers had marked cardiovascular degeneration, which reached an acute stage by the age of 40. This condition is thought to be definitely related to faulty diet and excessive consumption of tobacco and spirits. Some evidence was also obtained that deficiency of vitamin A was chiefly responsible for bronchial asthma and for some of the conjunctival affections among the East Indians. The percentage incidences of various diseases, such as ankylostomiasis, malaria, and syphilis, are represented diagrammatically, but the value of the figures is limited by the fact that they were based only on obvious clinical manifestations. While the investigators recognize that physical and climatic conditions may lower resistance and indirectly weaken the will to work, they consider that much could be done by instruction in healthy habits of living and by the general adoption of a suitable dietary. A more tentative suggestion is the gradual introduction of educational measures to change the attitude of the field labourer towards his methods and hours of work, which amount, on an average, to about twenty hours a week. As this question, however, involves deeply rooted family and racial traditions, it is doubtful if such habits and customs would be readily abandoned; even if they were, the psychological effect in other directions seems at present incalculable.

Varicella and Herpes.

"K. B. C." writes: On October 25th I vaccinated a young lady aged 19. On the 26th she developed a typical chicken-pox rash, which ran a normal course. On November 9th I saw her mother, aged 38, with mild chicken-pox; on the 10th her stepfather, aged 39, had developed chicken-pox, which he has had very severely, running a température of 103° F. for several days. He had also two well-marked patches of herpes, one over a right intercostal nerve and one over the course of the left external cutaneous nerve. As his illness was severe, the diagnosis was confirmed by the medical officer of health.

Vacancies.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 48, 49, 50, 51, 55, and 56 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 52, 53, and 54.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 235.

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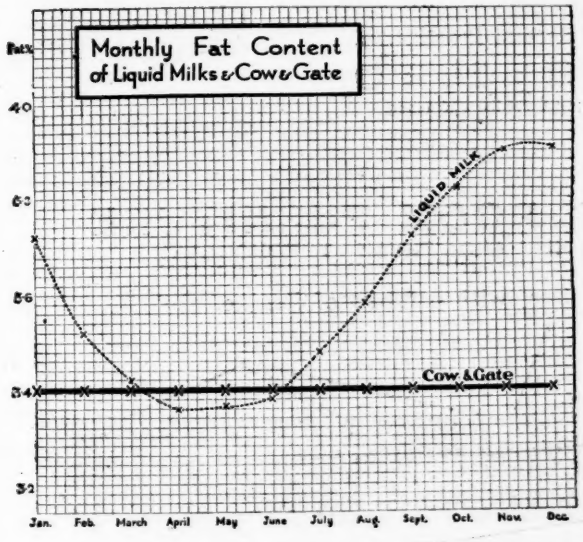

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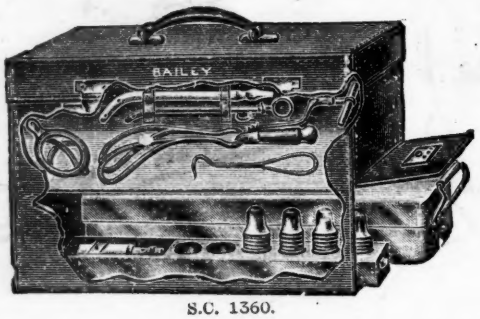

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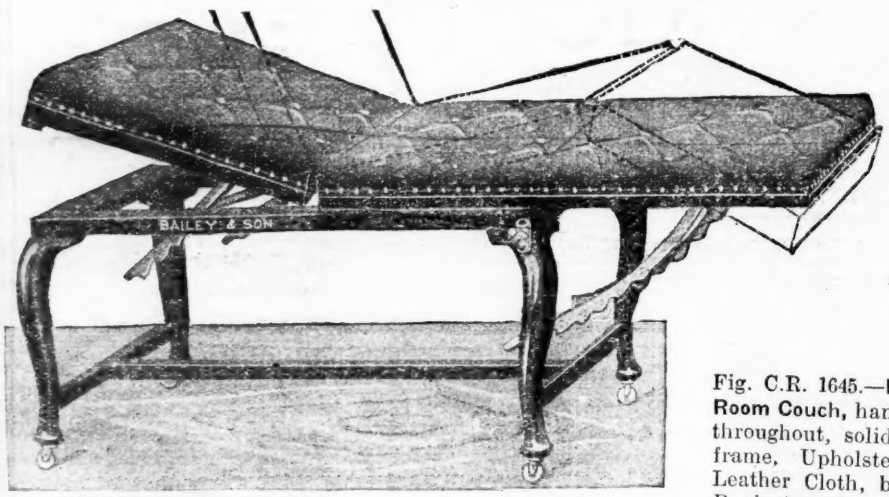

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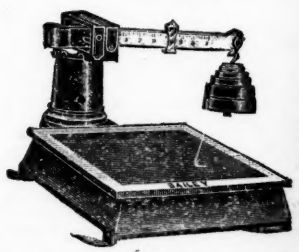

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